

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

100, No 8

CHICAGO, ILLINOIS

140
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FEBRUARY 25, 1933

ANEMIA OF PREGNANCY

RELATION TO ANEMIA IN GENERAL

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The specificity of liver extract in the pernicious or hyperchromic anemia of pregnancy and of large doses of iron in the secondary or hypochromic type of anemia of pregnancy has greatly increased the interest in this subject and in the deficiency factors in anemia in general.

The high incidence of some degree of anemia in pregnancy, when looked for, and the demonstration of deficiency factors in its etiology also establish the great preventive opportunity in prenatal and health supervision work. It has been stated that, next to the blood and blood pressure, a blood count is of the greatest importance during pregnancy. The pernicious form of anemia, untreated, has had a 65 per cent mortality. None of 500 cases on record had prenatal care been given. The secondary form of pregnancy anemia, by overcoming of resistance, may dispose to a variety of obstetric complications and infections.

THE PERNICIOUS OR HYPERCHROMIC FORM

The pernicious form, though rather rare in general, occurred in six of our twenty-eight cases and approximately in the same proportion, namely, one sixth, of Mot's cases of high grade anemia of pregnancy (45 per cent hemoglobin or less). The clinical picture of this condition may be characterized as follows.¹ An insidious onset of anemia in the latter months of pregnancy sometimes not recognized till in the puerperium. Usually, however, there are symptoms of postpartum weakness, breathlessness on exertion, palpitation, headaches, dizziness, some edema of the feet, and occasionally an associated definite toxemia of pregnancy with albuminuria and hypertension. On account of the toxemia, the anemia may be overlooked if the blood is not examined. Labor may come on prematurely, it is characteristically short and relatively painless. Postpartum bleeding is scant. Stillbirth may occur, but a living child does not share in the anemia and develops normally. Labor aggravates the anemia. The patient may go into collapse during delivery or shortly thereafter if the anemia is quite marked. After parturition convalescence usually starts promptly, but there may be rapid progression in the anemia in the first week or two following delivery. At times this course is quite slow so that a serious degree of anemia is recognized only after a month or more of supposedly simple delay in convalescence and returning strength.

Hematologically the pernicious anemia of pregnancy is a hyperchromic macrocytic type quite similar to or

identical with Addisonian anemia. Apparently the same etiologic mechanisms hold for the two conditions, and like therapy is equally efficacious. Castle has shown in the pregnancy cases as in ordinary pernicious anemia that beefsteak alone has no effect on blood formation, but the product of beefsteak and normal human gastric juice produces a specific response like that of liver. Since pregnancy anemias do not relapse, it may be concluded that the anemia is due to the temporary loss of the intrinsic factor in gastric digestion during pregnancy, with a return to normal after that metabolic load has been removed. There is a relative deficiency of this specific intrinsic factor during gestation quite comparable to the relative pancreatic deficiency in the pregnancy glycosuria which clears up after delivery.

THE SECONDARY OR HYPOCHROMIC FORM

The secondary or hypochromic type of anemia is very common in mild degree and, much more frequently than is generally appreciated, reaches a serious degree. Castle and Strauss² studied a group of normal pregnant women by observing the blood, the gastric juice and the dietary history. More than half of these women showed a marked hypochlorhydria during pregnancy, with a return to normal following delivery. There was a 12 per cent average hemoglobin loss during pregnancy in these cases as against a 5 per cent average loss in those with normal gastric contents and diets. Three women with permanent posthistanine gastric achlorhydria had an 18 per cent average hemoglobin loss in spite of normal diet. Nineteen out of thirty-five women with less than 45 per cent hemoglobin during the latter half of pregnancy were found to have posthistanine gastric achlorhydria and twelve more had little or no free hydrochloric acid following alcohol test meals, showing the relationship between gastric digestion and the anemia. These women were found to have been taking a diet definitely deficient in iron, mineral elements and protein. Liver extract produced no improvement in these secondary cases, but all improved rapidly with large doses of iron whether treated during or after pregnancy.

The observations in the secondary or hypochromic type of pregnancy anemia correspond to those of similar studies on certain simple secondary anemias and indicate that the etiologic factors of dietary deficiencies and deficiencies in gastric digestion associated with achlorhydria or hypochlorhydria are common to the two. Apparently the blood requirements of the fetus correspond to blood loss or other causes of secondary anemia in throwing a metabolic overload on the function of hematogenesis during pregnancy. Moreover, the response to iron is as great in the hypochromic anemia of pregnancy as in other hypochromic anemias. A

¹ Jew and V. C. The Pernicious or Hemolytic Anemia of Pregnancy. J. A. M. A. 82: 37 (Feb. 2) 1927.

² Strauss M. B. Observations on the Etiology and Treatment of Anemia in Pregnancy. J. Clin. Investigation 11: 899 (July) 1932.

reticulocyte response may be observed with adequate dosage, but it is not as marked as in the hyperchromic anemia treated with liver

BLOOD IN MOTHER AND INFANT

Incompatibility of blood grouping between the mother and the infant was reported a few years ago as the basis of the anemia of pregnancy, but this was soon found to be not generally true. Galloway³ in 1929 reported that of eighty-four pairs of mothers and infants, fifty-three pairs were in unlike groups. The mothers of like infants averaged 63 per cent hemoglobin and 3,730,000 red blood count, and those unlike infants averaged 67 per cent hemoglobin and 3,830,000 red blood count. In eleven severe cases with hemoglobins of from 40 to 60 per cent, at term there were nine in which mother and infant were compatible. Obviously, the matter of blood grouping is quite independent of the nutritional factor that disturbs hematogenesis during pregnancy.

The infant does not share in the anemia of the mother whether or not their blood happens to fall in the same group. A highly anemic mother may and usually does bear a child with a normal blood. Conversely, rare cases of high grade anemia in new-born infants are found with mothers having a normal blood count.

Hematogenesis seems to be independent but similar in mother and child. The anemias of early infancy respond to liver extract and iron, as recently reported by Maurer, Greengard and Kluver.⁴ Williamson found that normal infants on a milk diet lose in the hemoglobin content of their blood from 23.5 Gm per hundred cubic centimeters at birth to about 13 Gm at 4 months. The rate of this decline depends on the infant's nutrition, and the decline is promptly checked by liver extract and iron.

MATERNAL ANEMIAS

In our series of twenty-eight cases of pregnancy anemia, six were found to be of the primary or hyperchromic type, as indicated by poikilocytosis, macrocytosis and high color index. Some of these cases were seen before the period in which liver treatment was used. Undoubtedly during this period there were many milder cases of the secondary type unrecognized. Some of the severer cases regarded as secondary showed evidences, such as moderate poikilocytosis and anisocytosis, of a mixture of primary and secondary factors. As Minot has pointed out, in Addisonian anemia there may remain, after adequate treatment with liver extract, a simple hypochromic anemia requiring massive doses of iron and a balanced diet to restore the blood to full normal. In my series there were a number of complications or associated conditions, such as pernicious vomiting, psychoses, marked gastro-intestinal disturbances, yet up to the present time no real attempt has been made to carry out a rational prophylaxis in these cases.

The following case report of a pernicious or hyperchromic anemia of pregnancy is given to illustrate the failure of response to iron and ammonium citrate and the specificity of response to desiccated hog stomach during the latter months of pregnancy in spite of a chronic infection.

Mrs. T. M., aged 22, a secundipara, came from Italy during an early pregnancy. She was first seen, Aug. 28, 1930, at about the seventh month of pregnancy, with a transient fever probably

associated with an old rheumatic mitral and aortic endocarditis. By September 6 the temperature and pulse became normal and stayed normal. August 28, the red blood count was 2,310,000, hemoglobin, 50 per cent, white blood count, 9,700. Iron and ammonium citrate, 60 grains (4 Gm.) a day, was started. September 19, the red blood count was 1,970,000, progressing by September 24 to 1,750,000, hemoglobin 50 per cent, white blood count, 5,000. The anemia was of the primary type with a color index of 1.4 poikilocytosis and macrocytosis. After this progressive increase in the anemia from September 6 to 24, in spite of a normal temperature and general comfortable condition and iron, the latter was stopped and desiccated hog stomach started—two vials a day, September 25. The following striking response was noted:

Sept. 24, 1930, red blood cells, 1,750,000, hemoglobin, 50 per cent

October 7, red blood cells, 2,100,000, hemoglobin, 50 per cent

October 22, red blood cells, 2,200,000, hemoglobin, 53 per cent

November 1, red blood cells, 2,330,000, hemoglobin, 58 per cent

November 7, red blood cells, 3,100,000, hemoglobin, 60 per cent

November 10, red blood cells, 3,430,000, hemoglobin, 60 per cent

November 11 (delivery), red blood cells, 3,000,000

Sept. 16, 1932, red blood cells, 5,120,000, hemoglobin, 87 per cent

After parturition there was the usual recession in the red blood count followed by rapid improvement. A doubling of the red blood count during the last six weeks of pregnancy was in contrast to a rapid increase in anemia on iron before the use of desiccated hog stomach. The patient's general condition remained good.

An extensive study of the anemia of pregnancy was made by Wills⁵ in India, where the disease is widely prevalent and related to dietary habits. Women by and large who are well fed are not anemic. The hospital classes, who are both quantitatively and qualitatively ill fed, presented a chronic so-called Bombay anemia. In one study of these cases the average daily protein intake was only 8 Gm. There were other factors, however, since there was a high incidence of pregnancy anemias among Mohammedan women who are meat eaters. In the anemic group there was a deficiency in (1) calories, (2) both animal protein and fat, (3) fresh fruit and vegetables and therefore (4) vitamins A, B and C, and (5) salts. The diets of mothers of premature infants were often deficient in vitamin B.

OTHER DEFICIENCY ANEMIAS

There is also a deficiency anemia in India known as tropical macrocytic anemia and, except for the accident of pregnancy, it is indistinguishable from the pernicious form of pregnancy anemia. This tropical macrocytic anemia occurs alone, with pregnancy, or complicated with malaria, hookworm disease and sprue. The response to treatment is very instructive. Iron and arsenic, in whatever form, are useless, according to all workers in India who recognize this form of anemia. Liver is specific and produces a typical reticulocyte response. In desperate cases with less than 20 per cent hemoglobin, if the patients survive the first five days they are restored to life and health with large doses of liver extract. Before this response, death may occur from acute heart failure. In pregnant patients after delivery there may be a natural remission just as in patients in America who survive the exacerbation due to the strain of labor.

³ Galloway, C. E. Anemia of Pregnancy. *J. A. M. A.* 93: 1695 (Nov. 30) 1929.

⁴ Maurer, Siegfried, Greengard, Joseph and Kluver, Cessa. The Value of Liver Extract and Iron in the Anemia of Young Infants. *J. A. M. A.* 95: 1069 (March 26) 1932.

⁵ Wills, Lucy and Mehta, M. M. Studies in Pernicious Anemia of Pregnancy. Preliminary Report, *Indian J. Med. Research* 17: 777 (Jan.) 1930. Wills, Lucy, Talpade, S. N. Studies in Pernicious Anemia of Pregnancy. A Survey of Dietetic and Hygienic Conditions of Women in Bombay, *ibid.* 18: 283 (July) 1930.

Curiously, in India the cases responded also to vitamin B preparations. A series of twenty-two cases treated with an autolyzed yeast preparation in drachm (4 Gm) doses, from two to four times a day, showed a response quite comparable to that of liver extract. This response was obtained even in the presence of untreated malaria or hookworm infestation and is quite in contrast with its complete inactivity in the secondary anemia that so frequently accompanies these infections without the nutritional fault. The macrocytic anemia represents a dietetic deficiency disease. In addition to its vitamin B content, the protein of the autolyzed yeast preparation is known to be of good biologic value. In any event, the autolyzed yeast preparation, although of vegetable origin, has an effect identical with liver extract, with a specific reticulocyte response. The effect of both is inhibited by septic infections, so that large doses are required just as with liver extract in pernicious anemia.

Studies of the anemia of sprue by Castle and Rhoads⁶ showed precisely the same mechanism in this nutritional disease, which has an achlorhydria in about half the cases. The deficient substance is apparently identical with that produced by beef muscle and normal gastric juice. Liver extract either by mouth or by injection produced prompt relief from the sore tongue and diarrhea of sprue. The characteristic reticulocyte crisis was obtained, though sometimes atypical. In many cases there is an associated hypochromic or secondary type of anemia in which iron and ammonium citrate is specific. In a few cases, also, autolyzed yeast preparations produced reticulocyte crises and improvement of blood. No relation to the presence or absence of *Monilia psilosis* was found. In the hyperchromic cases, bone marrow biopsies resembled closely those of pernicious anemia.

Even in hookworm anemia, as studied by Castle and Rhoads in Puerto Rico, dietary deficiency and gastrointestinal changes were found to be of major etiologic significance, since a much greater immediate response was obtained by treatment with iron and ammonium citrate in the presence of the parasites than by the elimination of hookworms without such treatment.

In bothriocephalus anemia, which occurs in approximately 1 in 5,000 people infested with the fish tapeworm, it was recognized long ago by Schauman⁷ that there are other basic etiologic factors than the parasite. Remissions of the anemia were observed without expulsion of the worm and with fatal recurrences as in ordinary pernicious anemia. Seventeen cases were recorded with cure by vermifuges, in which death later occurred from pernicious anemia without the presence of the worm. There seems also to be a family and racial predisposition to the anemia. Hypochlorhydria occurs in about 83 per cent of cases. There have been a few observations of cord lesions resembling the subacute combined sclerosis. There are cases with long standing bothriocephalus infestation in which anemia develops only with the added burden of pregnancy. Schauman had five cases in which the anemia started during pregnancy or during the puerperium, representing 20 per cent of his twenty-six female cases. Bothriocephalus anemia, like the other macrocytic anemias, responds promptly to liver treatment in characteristic fashion. There is a spontaneous reticulocytosis following the

expulsion of the parasite just as there is after parturition in the pregnancy cases. However, this is much slower and often incomplete. Here again liver treatment promptly restores the blood to normal. Even in the presence of the fish tapeworm, the anemia responds to liver treatment just as hyperchromic anemia responds during pregnancy. Obviously there is a basic deficiency in all these anemias that is not brought out under ordinary conditions of living. Under various conditions of strain, certain individuals are unable to maintain, at least in relation to their blood-forming organs, the so-called biologic equilibrium.

The results obtained in studies of widely different groups of anemia, with pregnancy and without, have advanced the knowledge of the physiology of hematogenesis in general. There is evidence, especially in the pregnancy cases, of direct dietetic deficiencies or nutritional deficiencies associated with gastric achlorhydria interfering with the production and absorption of those specific substances which excite reticulocytosis and blood formation.

PRACTICAL MANAGEMENT

Intelligent management of pregnancy must include a check up on the condition of the blood, and, when there is any degree of anemia, a supervision of diet, the administration of iron in the secondary or hypochromic form, and the use of liver extract promptly on the appearance of evidence of the rarer pernicious form or in pregnancy anemia, which is refractory to treatment by iron. These anemias of pregnancy and the associated nutritional deficiency may be at least one of the etiologic factors in pernicious vomiting, premature birth, dental caries, thyroid enlargement, faulty lactation, delayed involution, postpartum psychoses and lowered resistance to tuberculosis and other infections. The relation of hypothyroid function to pregnancy anemia also needs to be studied.

The important thing is for the physicians to be sensitized to the possibility, during pregnancy, of overstrain on the function of hematogenesis, which occurs very commonly in slight degree and occasionally in a serious degree. If iron is needed, it should be used in the massive doses of from 90 to 120 grains (6 to 8 Gm) a day in order to get the specific response. A 50 per cent solution of iron and ammonium citrate in drachm doses is very well borne if taken in fruit juice or broth through a tube. Liver extract and iron may be used simultaneously, when there is a suggestion of the hyperchromic form of anemia. Although usually distinct, there seem to be some mixed forms. The history of the tendency to anemia either in the patient or in her family is of definite significance and doubly so during pregnancy. It is not uncommon in pernicious anemia to get the history of a lifelong tendency to simple anemia in the patient or in various members of the family for many years before the onset of the pernicious form and during remissions of the disease.

Prenatal supervision should prevent high grade anemia of pregnancy. Transfusion should not be necessary except in an emergency, when it may be a life saving measure. Many transfusions have been done during pregnancy without complications. In severe cases one may take advantage of the prompt response to liver extract by intravenous injection, although the intramuscular injection is almost as prompt and probably safer. The reticulocyte response occurs in from twenty-four to thirty-six hours. If the patient can be tucked over the first five day period, blood regeneration

⁶ Rhoads, C. P. and Castle, W. B. Observations on the Etiology and Treatment of the Anemia of Hookworm Disease in Porto Rico. *J. Clin. Investigation* 11: 809 (July) 1932.
⁷ Schauman, Ossian. Zur Kenntnis der sogenannten Bothriocephalus Anämie. *Heimische Medizin* und *Goos* 1899.

or sore tongue with "acid" fruits and the like, and a history of several relapses and remissions of pallor and weakness. These patients can only rarely date the onset of their pallor but have been "pale for years" or ever since they can remember. Relapses in these cases may often be associated with pregnancy—nine times in the present series. Disorders of menstruation are common and may be manifested as menorrhagia or diminished menses. Paresthesias of the fingers and toes are at times complained of, and in one case there was a history of ataxia. On direct questioning, a history of brittle finger nails and of early graying of the hair is frequently obtained. Nervousness and a worrisome temperament are almost invariably present. There is usually a history of marked loss of weight.

The symptoms are characteristically chronic in nature, the patients having usually consulted numerous physicians and having frequently been given pills of ferrous carbonate. The symptomatology, it must be admitted, is usually so vague that the diagnosis of a definite disease entity is not ordinarily made. Particular attention should be paid, however, to a long history of pallor and to such special features as peculiar dietary, burning tongue, brittle finger nails and early graying of the hair. A history of familial anemia may sometimes be obtained.

SIGNS

Physical examination reveals a varying degree of pallor, which is "white" or "straight", i e., without jaundice. At first glance, the skin may appear to be yellowish, but this coloration is due not to jaundice but to the "unmasking" by the lack of hemoglobin of the underlying yellow of the skin. The skin takes on another characteristic feature, which has been stressed by Davies,³ i e., it becomes very wrinkled. Even the younger women with the disease have the atrophied, inelastic, wrinkled skin ordinarily seen only in the aged

TABLE 2—Miscellaneous Features

Case	Name	Presenting Symptom	Nationality	"Type" of Case
1	H H	Dyspnea	Canadian	Idiopathic
2	B S	Weakness	Jewish	Pregnancy (?)
3	M O	Weakness	Scotch	Dysphagia
4	K N	Weakness	American	Idiopathic
5	R M	Hysteria	French Canadian	Pregnancy
6	C M	None	Irish American	Idiopathic
7	B A	Weakness	Jewish	Idiopathic
8	O D	Fatigue	Jewish	Idiopathic
9	E A	Belching	American	Idiopathic
10	M M	Fatigue	American	Pregnancy
11	L D	Weakness	Italian	Idiopathic
12	J C	Preordial pain	Scotch	Idiopathic
13	B M	Weakness	Scotch	Pregnancy
14	M B	Weakness	Italian	Pregnancy
15	M S	Substernal constriction	Jewish	Tapeworm
16	B S	Weakness	Jewish	Gastro-enterostomy
17	D H	Fatigue	Jewish	Idiopathic
18	A W	Pain, abdomen	Irish	Idiopathic
19	M L	Ulcer on leg	French Canadian	Idiopathic
20	S K	Stomach trouble	Irish	Idiopathic
21	H B	Diarrhea	Scotch	Idiopathic
22	B G	Myxedema	Jewish	Myxedema
23	J W	Pregnancy	Irish	Pregnancy
24	F M	Fatigue	Irish	Idiopathic
25	M L	Fatigue	Jewish	Pylorectomy

Coarse wrinkles about the mouth are common and at times excoriations are seen. The hair is dry and inelastic. Graying of the hair is common and often pronounced. The "pepper and salt" appearance to the hair so often seen in pernicious anemia is also common here. This is frequently a familial characteristic. Great interest must center in the appearance of the tongue, which almost without exception is abnormal. Its exact condition varies with the duration of the disease and the severity of the symptoms. In the early

cases, it is intensely red and has the appearance of inflammation, the papillae cannot be seen, the normal coat is absent. In a long standing case, the tongue is characteristically much smaller than normal, definitely atrophied, very shiny, and completely devoid of coat and papillae. Davies³ aptly calls it "bald." Other cases may show a combination of these two types of

TABLE 3—The Gastric Juice

Case	Name	Free Hydrochloric Acid		Volumes	Mucus	After Treatment
		Without Histamine	With Histamine			
1	H H	Absent	Absent	Very low	?	Absent
2	B S	Trace	Not absent	?		
3	M O	Trace	Not absent	Low	?	
4	K N	Absent	Absent	Low	?	
5	R M	Absent	Absent	Low	?	
6	C M	Absent	Absent	Low	++	Absent
7	B A	Absent	Not done	Low	+++	
8	O D	Absent	Absent	Very low	+++	Absent
9	F A	Absent	Absent	Very low	+++	Absent
10	M M	Absent	At 40 min, 13	Very low	++	
11	L D	Absent	Not done	?	?	
12	J C	Absent	Absent	Very low	?	—
13	B M	Absent	Not done	Very low	+++	—
14	M B	Absent	Not done	—	—	—
15	M S	Absent	At 20 min, 10	Very low	—	—
16	B S	Absent	Absent	Very low	—	—
17	D H	Absent	Present at 20 min	Very low	—	—
18	A W	Absent	Absent	Very low	++	
19	M L	Absent	Not done	Low	?	—
20	S K	Absent	Absent	Very low	++	
21	H B	Absent	Absent	Low	?	
22	B G	Absent	Absent	Low	?	
23	J W	Absent	Not done	Very low	++	
24	F M	Absent	Absent	Low	—	—
25	M L	Absent	Absent	Low	—	—

signs. At times, only small areas of redness, usually at the tip, are present. The abdominal wall is flabby. The spleen is not usually palpable. The appearance of the nails is often striking and has been stressed by Kaznelson⁵ and Davies⁸. There is often a complaint of brittle nails, which on examination are found flattened, in some cases actually concave or "spooned." They are usually smaller than normal, lack the normal luster, and frequently present vertical ridges.

THE BLOOD

There is a marked reduction in hemoglobin together with only a slight or moderate reduction in the red blood cell count. The color index is thus markedly reduced and, as a corollary, the red blood cells show marked hypochromia (achromia). The erythrocytes are also markedly reduced in size (microcytosis), the average red blood cell diameter being usually well below 7 microns. The lowest hemoglobin reading in the series was 12 per cent (case 1), the lowest erythrocyte count, in the same case, 1.8 millions, and the lowest average red blood cell diameter, 6.02 microns. Normoblasts are rarely seen. Reticulocytes are present in normal or diminished percentages and the blood platelets are usually moderately diminished. In case 2 the latter elements were so reduced (44,000 per cubic millimeter) that petechial hemorrhages and ecchymoses were present. The white blood cells are also usually reduced, leukopenia being present in almost every case. Counts of from 4,000 to 6,000 per cubic millimeter are common, and occasionally counts of from 2,000 to 3,000 are seen.

THE GASTRIC SECRETION

The best studies are those of Davies¹⁰. He has noted, as have all who have written on the subject, the almost constant presence of achlorhydria, but in addi-

10 Davies D T. Studies on Achlorhydria and Anemia. Quart J Med 24: 447 (July) 1931.

tion he has emphasized the low volumes, the presence of an increased amount of mucus, and the marked diminution in pepsin content. He also points out the rapid emptying time of the stomach. Davies examined twenty-four cases following the injection of histamine and found that sixteen showed a secretion of free hydrochloric acid after this procedure. Of the present series of twenty-five cases, free hydrochloric acid was absent in twenty-three instances (table 3) with the ordinary test meal, the other two cases showing traces of free acid. Seventeen patients with achlorhydria were then given histamine, which in fourteen failed to produce a secretion of free hydrochloric acid. In every case, the volumes of gastric juice were low, often only a few cubic centimeters, and the presence of thick mucus often made aspiration difficult.

Castle¹¹ has demonstrated, in the study of a few cases of primary hypochromic anemia, that the "λ" factor, which is lacking from the gastric secretion of patients with pernicious anemia, is present in this disease. In a previous publication, I⁶ have postulated that the achlorhydria of primary hypochromic anemia might be evidence of a gastric juice which is defective in the digestion of iron-containing food, resulting thus in an iron deficiency in the body. I have attempted to confirm this in one case by following Castle's technic for demonstrating the presence or absence of the "λ" factor in gastric juice.

CASE 9¹²—E. A., a woman, aged 50, had complete achlorhydria and marked hypochromic anemia. Large amounts of iron-containing foods, one-half pound (225 Gm.) of spinach and yolks of four eggs were given daily. There was no increase in reticulocytes, hemoglobin or erythrocyte count (fig 1). She was thereupon given by stomach tube a mixture of normal gastric juice which had been incubated for one hour at 37.5 C with one-half pound of finely cut spinach and the yolks of four

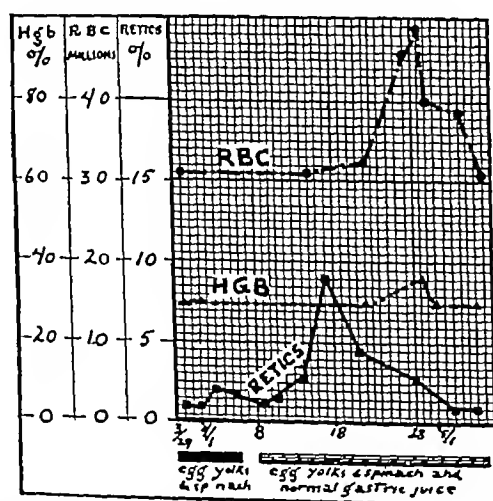


Fig 1—The effect of feeding (a) the yolks of six eggs and 225 Gm. of spinach daily and (b) the same foods incubated for two hours with normal gastric juice. There are definite reticulocyte and erythrocyte responses but there is only a slight increase in hemoglobin percentage.

eggs. On the sixth day of this treatment there was a slight rise in reticulocytes, which reached a peak of 85 per cent on the ninth day. Following this rise, there was slight increase in hemoglobin (from 30 to 35 per cent) and rather marked increase in erythrocyte count (from 3.1 millions to 4.8 millions on the twenty-first day). None of these increases were per-

manent, however, since there was prompt relapse even before treatment was discontinued. Later observations showed prompt response to inorganic iron.

This single observation is, to be sure, of but little value, although it points in the direction that the gastric juice of a patient with primary hypochromic anemia may be defective in the digestion of organic iron. Further observations along this line are indicated.

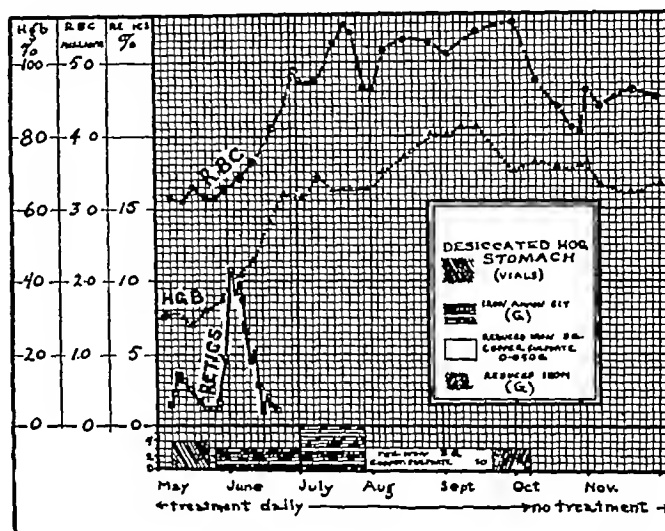


Fig 2—The effect in case 9 of giving (a) desiccated hog stomach (b) iron and ammonium citrate 3 Gm daily (c) iron and ammonium citrate 6 Gm daily (d) the same medication with added copper sulphate (e) omitting medication. There is a slight reticulocyte response with desiccated hog stomach but no definite effect on hemoglobin or erythrocyte production. The effect of iron and ammonium citrate, 3 Gm daily, is striking but at the end of one month, both hemoglobin and erythrocyte counts remain practically stationary. This is remedied strikingly by added copper. When copper is discontinued there is again a relapse which is continued when all medication is omitted.

In four cases, the gastric juice was studied from three months to one year after the blood had become normal (cases 1, 6, 8 and 9). These patients all showed complete achlorhydria before treatment. There was no change in this condition after treatment. The same has been found to hold true in cases of pernicious anemia after treatment with liver extract.

OTHER LABORATORY DATA

The icteric index is low (from 4 to 6) and the bilirubin content of the blood serum is diminished. Diminution in bilirubin is probably due to the normal degree of blood destruction in the presence of diminished hemoglobin and erythrocyte values. The condition of the bone marrow has been presented in a previous publication.⁸ Biopsy of the sternal bone marrow shows, even in the presence of marked anemia, marked hyperplasia of the red cell forming elements. The hyperplasia is of the normal nucleated red cells (erythroblasts and normoblasts) and not of the primitive or embryonic megaloblasts seen in pernicious anemia.

SPECIAL FEATURES AND CONTRIBUTORY FACTORS

The characteristic features in the disease may be summarized as follows:

(a) *Symptoms*—Chronic weakness, dyspnea, gastro-intestinal disturbances, sore tongue, with tendency to remissions and relapses.

(b) *Signs*—Pallor, glossitis, dry, graying hair, brittle, often "spooned" finger nails.

(c) *Laboratory Observations*—Anemia of low color index, achlorhydria, hyperplasia of erythroblasts in the marrow.

11. Castle W. B., Townsend W. C. and Heath C. W. Observations on the Pathologic Relationship of Achylia Gastrica to Pernicious Anemia. *Am. J. M. Sc.* 150: 305 (Oct.) 1910.

12. From the Research Division of the Boston State Hospital. I am indebted to Dr. James A. May for permission to use this case.

The various causes for secondary anemia are not usually present. Careful search in these cases was always made for hemorrhage, particularly from the bowel, as well as for infection, for a malignant condition and for poisons such as lead. It is true that in two of these cases (1 and 18) a certain degree of menorrhagia was present, in case 7 there was a slight chronic loss of blood from hemorrhoids. However, it did not seem possible that the anemia, together with the accompanying clinical picture, could be secondary merely to the loss of blood, since (1) the loss of blood was usually slight (cases with marked menorrhagia were excluded) and (2) the same or greater loss of blood in many other patients was certainly not productive of the same degree of anemia or the same clinical picture. It is, to be sure, possible that the anemia was intensified by the loss of blood.

Analysis of the present series of twenty-five cases resulted in the formation of two groups: (1) fourteen cases that were completely idiopathic and (2) eleven cases in which an associated condition or disease was present. In the latter group, recent pregnancy was a factor in six cases, dysphagia (the Plummer-Vinson syndrome) was present in one case, myxedema and beef tapeworm were factors in other single cases, and operations on the stomach had been performed in two other cases. These conditions did not in themselves appear sufficient to bring about the syndrome delineated, but they undoubtedly increased the necessity for blood formation. The anemia in this group appeared to be due to a summation of several factors, chief among which was probably an inherent abnormality in blood formation, which in turn might be dependent on a poorly functioning gastro-intestinal tract.

A. THE ORDINARY, TYPICAL OR IDIOPATHIC GROUP

There were fourteen cases in the idiopathic group. Two of these may be cited as examples.

CASE 1¹³—H. H., a woman, aged 44, had dyspnea, weakness, loss of weight, diarrhea and marked pallor in 1925 (relapse 1). There was prompt response to the use of iron pills. Relapse 2 took place in 1926 with a recurrence of the symptoms, which again responded to iron pills. Relapse 3 took place in 1928, she was taking no iron pills and became progressively weaker. She had marked diarrhea and lost considerable weight. Marked soreness of the tongue and paresthesias of the fingers and toes developed. By July, 1930, she could hardly walk about and had lost 30 pounds (14 Kg.). On admission to the hospital she showed profound anemia (hemoglobin, 12 per cent, red blood cell count, 1,960,000), leukopenia (3,700 white blood cells per cubic millimeter) and thrombocytopenia. The erythrocytes were hypochromic and much smaller than normal. The tongue was glossy and atrophied. The finger nails were "spooned." The signs of combined system disease were present. There was complete achlorhydria. The bone marrow showed marked hyperplasia of normoblasts and erythroblasts. No response occurred with liver extract, but with large doses of iron and ammonium citrate there was prompt response in reticulocytes, hemoglobin and red blood cell counts. The appetite became voracious. In three months, hemoglobin was 88 per cent, the erythrocyte count was almost 50 million per cubic millimeter and the patient had gained 40 pounds (18 Kg.). The tongue had become normal. She disappeared from observation from November, 1930, to February, 1932, and had discontinued iron medication on the former date. Relapse 4 began in March, 1931, but was terminated quickly when she took the remainder of her iron medication. Relapse 5 began in November, 1931, and in February, 1932, she returned to the clinic with hemoglobin 30 per cent and the erythrocyte count 248 millions. There was again prompt response to iron medication.

CASE 12—Jennie C., a woman, aged 40, began to have, one year prior to admission, precordial pain on exertion. She became very weak and lost her appetite, pallor developed and she was unable to sleep well. Examination disclosed a markedly wrinkled face, excoriations about the mouth, moderate pallor, dry hair, an atrophied glossy tongue, spooned finger nails, complete achlorhydria and marked hypochromic anemia (hemoglobin 30 per cent, erythrocyte count 297 millions). There was a prompt response to large doses—from 4 to 6 Gm. (60 to 90 grams) daily—of reduced iron, the hemoglobin rising to 86 per cent and the red blood cell count to 466 millions. At the end of the three-month period of treatment, the patient's symptoms had disappeared, she had gained weight, in appearance she was lobster-red, her tongue showed a white coat and numerous papillae, and her finger nails were less brittle.

B. CASES WITH AN ASSOCIATED CONDITION

1. Pregnancy—In six cases (2, 5, 10, 13, 14 and 23) there was a history of pregnancy, occurring within six months of the onset of marked symptoms. For some years it has been known that two types of severe anemia (not due to bleeding) may be associated with pregnancy: the "pernicious" type and the "secondary" type.¹⁴ Strauss¹⁵ recently reported three cases of hypochromic or chlorotic anemia of pregnancy, presenting achlorhydria and responding strikingly to large doses of iron. Davies⁸ emphasized the fact that not a few women afflicted with a mild degree of anemia manage quite well until pregnancy supervenes, at which time the anemia and its associated symptoms become prominent. He felt that this was due to a depletion of the mother's iron store, the deficient gastric juice making it difficult of replenishment.

A study of these cases demonstrates that anemia was usually present long before pregnancy had supervened. The same history of pallor of years' duration and former treatment with pills of ferrous carbonate may be obtained as in the completely idiopathic cases. The development of pregnancy appears to act as the extra burden, which, when added to the underlying difficulty in iron absorption, results in anemia.

2. Dysphagia—Patient 3 complained of weakness of several months' standing. For ten years she had been unable to swallow meat because it made her "choke." She was found to have an atrophied tongue, spooned finger nails, dry, gray hair and a moderate degree of hypochromic anemia. Only a trace of free hydrochloric acid was present in the gastric contents. The anemia responded well to meat juices and beef purees, together with small doses of inorganic iron.

The syndrome of dysphagia, weakness and anemia was first described by Paterson¹⁶ and by Kelly¹⁷ but became more widely known after the article of Vinson¹⁸. It is frequently called the Plummer-Vinson syndrome. There is usually a history of long standing dysphagia, manifested as the inability to swallow solid foods, particularly meats, and this is associated with weakness, neurasthenia, dyspnea, anemia and brittle nails.

Suzman¹⁹ has described a series of eight such cases. One of these at postmortem examination disclosed in the tongue, hypopharynx and esophagus a condition of hyperkeratinization of the epithelium with extensive

¹⁴ Larrabee, R. C. The Severe Anemias of Pregnancy and the Puerperium, *Am. J. M. Sc.* 170: 371 (Sept.) 1925.

¹⁵ Strauss, M. B. Chlorotic Anemia of Pregnancy, *Am. J. M. Sc.* 180: 818 (Dec.) 1930.

¹⁶ Paterson, D. R. A Clinical Type of Dysphagia, *J. Laryngol. & Otol.* 34: 289 (Aug.) 1919.

¹⁷ Kelly, A. B. Spasm at the Entrance to the Esophagus, *J. Laryngol. & Otol.* 34: 285 (Aug.) 1919.

¹⁸ Vinson, P. P. Hysterical Dysphagia, *Minnesota Med.* 5: 107 (Feb.) 1922.

¹⁹ Suzman, M. M. Personal communication to the author.

¹³ This case is fully described in the author's previous publication.⁸

areas of desquamation and, in addition, atrophic degeneration of the underlying muscle tissue. Suzman is of the opinion that the development of the anemia is not attributable to the dysphagia but feels that the underlying cause of all the manifestations of this syndrome is in the nature of a deficiency dependent on a gastric abnormality.

Except for the added feature of dysphagia, there appears to be no difference between the so-called Plummer-Vinson syndrome and the syndrome described in this paper.

3 Gastro-Enterostomy, Gastrectomy—Patients 16 and 25 had marked anemia following operations on the stomach. In both, complete achlorhydria was found. The development of anemia after total gastrectomy is well known. In most cases some degree of anemia develops, which in the great majority is hypochromic rather than hyperchromic (pernicious) in type.²⁰ Recently anemia, together with changes in the tongue and finger nails, has been reported following the operation of gastro-enterostomy, especially when achlorhydria was present (Taylor,²¹ Davies⁸). Morley and Roberts²² feel that the anemia may be associated with the rapid emptying rate of the stomach and with the production of achlorhydria.

4 Myxedema—Two cases, only one of which is included in this report, presented anemia, complete achlorhydria, and myxedema. In one of these patients (patient 22) the anemia did not respond to thyroid extract or to large doses of iron but there was prompt response to a mixture of reduced iron and copper sulphate. Lerman and Means²³ have recently demonstrated that nine of seventeen patients with myxedema showed complete achlorhydria. They point out that there is a direct correlation between the presence of achlorhydria and the degree of anemia. Whether the anemia in the cases of myxedema showing achlorhydria should be classified as "secondary" or grouped with the disease syndrome described in this report is debatable. The decision depends in great part on one's point of view. A study of the anemia per se shows it to be in all respects identical with the syndrome already described. The myxedema may thus be viewed as a contributory cause in the development of the anemia. From the observations of Lerman and Means, it seems probable that, in the presence of a normal gastric juice, anemia is unlikely.

5 Tapeworm—In patient 15, the typical symptoms, signs and anemia were present, together with the history of the passage of tapeworm segments for ten years. Anemia and tapeworm infestation have often been associated. Thus the association of *dibothriocephalus* latus infestation with pernicious anemia has been well known for many years. Although the worm may be the direct etiologic agent, it is possible that it may be only the added stimulus which together with a megaloblastic marrow and a peculiarly defective stomach, brings about the disease known as pernicious anemia.²⁴ In this regard it is well known that, in the great

majority of those harboring the fish tapeworm, anemia does not develop. Castle,²⁵ in his study of the anemias of Puerto Rico, made much the same observations in the anemia of hookworm infestation. He found (1) that while most of the natives harbored hookworms, only a certain percentage had anemia, (2) that riddance of the worms did not significantly alleviate the hypochromic anemia which was frequently associated with achlorhydria, (3) that large doses of inorganic iron resulted in prompt clinical and hematologic improvement even though the worms were not expelled. He feels that the presence of hookworms may be only one of a group of several factors which together result in an iron deficiency and thus in a hypochromic type of anemia. Among these factors he mentions changes in the gastro-intestinal tract, resulting in improper absorption of iron, and perverse or absent appetite resulting in improper dietary. *Taenia saginata* infestation has also been reported as a rare cause not only of pernicious anemia but of a "secondary" anemia as well.²⁶

COMMENT

A Pathogenesis of the Disease—Most authors who have written on this disease are of the opinion that the primary disorder is in the nature of a defective gastro-intestinal tract, usually the stomach, at times the intestine. This defect may lead to insufficient absorption of hemoglobin-containing foods and thus to hypochromic anemia. Experimental support is lent to this view by the work of Mettier and Minot, who found that iron is more potent for blood formation when absorbed from an acid rather than from an alkaline medium within the gastro-intestinal tract. They suggested that the anemia could result from failure over a prolonged period of time in the adjustment of the contents of the upper intestinal tract to a most suitable pH for iron utilization, which could result among other ways from achylia gastrica.

The development of anemia may be intensified or made more rapid by (1) insufficient diet, particularly meat, (2) dysphagia, and (3) such other added factors as pregnancy, myxedema, tapeworm or chronic blood loss. Individuals with achlorhydria appear to possess a defect or vulnerability which in the course of time, especially when these factors are present, may lead to anemia. Several authors have shown that a far greater percentage of individuals with achlorhydria have anemia than those with normal free hydrochloric acid in their gastric contents.²⁷ The abnormality common to all the cases listed is the marked diminution and usually the complete absence of free hydrochloric acid.

Whether the absence of free hydrochloric acid is directly responsible for the development of the anemia, or whether it is merely one among many incidents in a disordered gastro-intestinal tract, cannot be definitely stated at present. That the absence of free acid speaks for a more general disorder of the gastric mucosa is brought out by the careful studies of Davies, who found a markedly diminished content of pepsin, exceedingly low volumes of secretion, and large mucus content. It is, to be sure, possible that a parallel disorder of the intestinal mucosa may be present, resulting in improper absorption of iron. However, the only available evidence of a disordered gastro-intestinal tract

²⁰ Davies D. T. Liver Therapy in Anemia of Alimentary Origin. *Lancet* 1 292 (Feb. 8) 1930. Uhlhorn Emma. Totale Exstirpationen des Magens. *Arch. f. klin. Chir.* 144 593 1927.

²¹ Gordon Taylor C. and Hudson R. V. The Remote Results of Gastrectomy. *Brit. J. Surg.* 16 6-1 (April) 1929.

²² Morley John and Roberts W. M. The Technique and Results of Partial Gastrectomy for Chronic Ulcer with a Note on Gastric Analysis Following a Partial Gastrectomy. *Brit. J. Surg.* 16 269 (Oct.) 1928.

²³ Lerman Jacob and Means J. H. The Gastric Secretion in Exophthalmic Goiter and Myxedema. *J. Clin. Investigation* 11 16* (Jan) 1932.

²⁴ Burke J. I. W. *Dibothriocephalus* Anemia. *Dibothriocephalus Latens and Lerman's Anemia*. *Medicine* 11 1 (Feb) 1932.

²⁵ Castle W. B. Personal communication to the author.

²⁶ Ragosa A. Leber die Blutveränderungen bei Bandwurmtragern. *Folia haemat. Arch.* 19 269 1915.

²⁷ Eimfort Max. Remarks on Achylia Gastrica and Pernicious Anemia. *New York M. Rec.* 63 321 1903. Faber J. Davies J.

is represented by the changes in the gastric juice. No abnormalities of the stools have been noted except in the occasional patient with diarrhea. The many parallelisms between this disease and pernicious anemia lead one to suspect the absence in primary hypochromic anemia of an unknown factor useful in the digestion of iron-containing foods.

It is possible that the deficiency of iron in the body may result in a lowered function of various body cells and thus in such "trophic" disturbances as atrophied tongue, brittle finger nails, dry hair, and sallow wrinkled skin. In line with these speculations are the fundamental researches of Otto Warburg,²⁸ who has shown that the body cells contain in very minute concentration an iron porphyrin compound. This is highly active and functions as a catalyst, which takes up the oxygen brought to it by the red blood cells and gives it to oxidizable substances within the cell. It is possible that a reduction in the iron content of the body cells may result in their diminution in function, and thus in the "trophic" disturbances previously described (dry, graying hair, atrophic tongue, brittle finger nails).

B. Relation to Pernicious Anemia—In my previous publication, I stressed the close similarity between the syndrome described here and pernicious anemia. In fact, the natural tendency in the past has been to call some of these cases "pernicious anemia" despite their blood picture and despite their lack of response to liver extract. Thus McLester,²⁹ in writing of a group of patients with achlorhydria and anemia, among whom were four with hypochromic anemia, stated (of patient 2) that he was "inclined, in spite of failure to

find typical blood changes, to regard her disease as pernicious anemia." Of the twenty-five cases reported here, six were labeled pernicious anemia or questionable pernicious anemia at the first visit. It is possible that the failure of certain cases of "pernicious anemia" to respond to liver therapy has been due to mistaken diagnosis, primary hypochromic anemia being in reality present. It is easy to see how mistakes may occur, since in both are present a chronic idiopathic anemia



Fig. 3 (case 10)—The tongue about two months after treatment with iron and ammonium citrate was instituted. The appearance is glossy, with absence of papillae and almost complete absence of the normal coat. A small "island" of regenerating papillae is present at the posterior portion of the tongue.

with tendency to spontaneous remissions and relapses, in both there is weakness, sore tongue, gastro-intestinal disturbance, paresthesias. In both there is achlorhydria, in both a hyperplastic marrow, in both there is a leukopenia and a reduction in blood platelets. In pernicious anemia there is defective maturation of

megaloblasts, in primary hypochromic anemia, defective maturation of erythroblasts. The difference in blood picture is probably due to differences in the fundamental pathologic changes of the bone marrow. Since both diseases may be dependent on a defective gastric mucosa, it is theoretically possible that one type may by transition develop into the other. Such was apparently the case in one patient who in February, 1930, had a hypochromic anemia with achlorhydria but who in December, 1930, had a typical hyperchromic anemia responding to liver extract. One other case,



Fig. 4 (case 10)—The tongue about six months after the beginning of treatment. The tongue is now almost normal in appearance, presenting numerous papillae and an abundant coat. The shiny appearance has disappeared except from parts of the edges.

possibly intermediary between primary hypochromic anemia and pernicious anemia, was observed. In this woman, the signs of combined system disease were present. There was achlorhydria and anemia, but the color index was definitely below 1 and the red blood cells showed slight hypochromia. The average red blood cell diameter was 7.4 microns, macrocytes and microcytes both being present. It is possible that some of these cases of hypochromic anemia will ultimately present hyperchromic anemia. The appearance of cases of microcytic and macrocytic anemia in the same family is not rare (Faber and Gram,³⁰ Conner,³¹ Mustelin,³² Patek³³). Faber and Gram³⁰ cite the most remarkable family in this respect. Three generations were studied, anemia and achlorhydria appearing in the first two. One patient passed through the stages of "microcytic" anemia relieved by iron (1919), "latent" pernicious anemia (1928) and full-blown pernicious anemia relieved by liver extract in 1929. Other examples of transition from hypochromic to pernicious anemia are given by Davies³ and by Schaumann and Saltzman.³⁴ It is possible that pernicious anemia and primary hypochromic anemia may be variants of a more general disease characterized by achlorhydria, gastric defect and anemia.

C. Relationship to Chlorosis—Is it possible that the primary anemia described here is chlorosis? Although the latter disease was common in the late decades of the nineteenth century, it is now almost never diagnosed and is universally considered to be defunct. The possible reasons for its disappearance have aroused much unprofitable speculation. Various authors con-

30. Faber Knud and Gram H. C. The Association of Achlorhydria and Anemia of Different Types in Three Members of the Same Family and the Behavior of the Color Index in Pernicious Anemia, *Arch. Int. Med.* 34: 827 (Dec.) 1924. Gram, H. C. Further Observations on a Family Showing Many Cases of Pernicious Anemia, *Acta med. Scandinav.* 34: 107 1929 suppl.

31. Conner H. M. Hereditary Aspects of Achlorhydria in Pernicious Anemia. A Study of Gastric Acidity in 154 Relatives of 109 Patients Having Pernicious Anemia, *J. A. M. A.* 94: 606 (March 1) 1930.

32. Mustelin O. Erbllichkeit und perniziöse Anämie, *Acta med. Scandinav.* 56: 411 (April) 1922.

33. Patek A. J. Family Pernicious Anemia, *J. A. M. A.* 56: 1315 (May 6) 1911.

34. Schaumann O., and Saltzman, F. Die perniziöse Anämie, in Schittenhelm A. *Handbuch der Krankheiten des Blutes und der blutbildenden Organe*. Berlin: Julius Springer, 2: 100-258, 1925.

28. Warburg, Otto. Iron, the Oxygen Carrier of Respiratory Ferment, *Science* 61: 575 (June 5) 1925.

29. McLester, J. C. Clinical Syndromes That Include Achlorhydria, *J. A. M. A.* 95: 719 (Sept. 6) 1930.

sider that the type of anemia described in this paper is a "present-day" chlorosis (Mills,² Schulten,³ Naegeli⁴) The blood picture in the two conditions is, to be sure, indistinguishable there is in both a marked diminution in hemoglobin as compared with slight or moderate diminution in red blood cells and therefore a low color index, the red blood cells show hypochromia and microcytosis Chlorosis responds quickly to iron medication, as does primary hypochromic anemia Against the concept that one is dealing here with chlorosis are the following features ³⁶ 1 Chlorosis was peculiar to young girls and its existence after the age of 30 was so rare as to be doubted by most authors 2 It was associated with hyperchlorhydria and not achlorhydria 3 It was not associated with a sore or atrophied tongue 4 It was not associated with central nervous symptoms 5 Again, the disease is said to have been ameliorated by pregnancy Despite these features, it cannot be denied that, since both diseases are (a) idiopathic or primary and (b) respond quickly to iron medication, the same pathogenesis may account for the two Bloomfield³⁷ presents several arguments emphasizing "the impossibility of differentiating 'chlorosis' in the nineteenth century sense from the (primary) hypochromic anemia of modern writers" An interesting speculation is that some of the middle-aged women presenting themselves now with hypochromic anemia may have had as girls the other iron deficiency disease—chlorosis It may be helpful to group the three diseases in tabular form (table 4)

TABLE 4—Three Primary Anemias

	Primary Hypochromic Anemia	Pericious Anemia	Chlorosis
Age	Usually in middle aged	Middle to old age	Young girls
Sex	Limited to females	Both sexes	Females
Relapses	Present	Present	Present
Relation of relapse to pregnancy	Frequent	Occasional	No relation
Sore tongue	Frequent	Absent	Absent
Finger nails	Spooned	Normal	?
Hair	Dry often gray	Gray	?
Gastric juice	Achlorhydria	Achlorhydria	Hyperchlorhydria
Color index	Low	High	Low
Red cells	Hypochromia microcytosis	Hypochromia macrocytosis	Hypochromia microcytosis
Active iron	Inorganic iron	Liver extract etc	Inorganic iron

D Is This Secondary Anemia?—The hypochromic blood picture suggests the possibility of secondary anemia As stated in my previous publication, the presence of a low color index and hypochromia does not at once rule out a primary, "idiopathic" or 'essential' anemia (cf chlorosis) nor conversely does the presence of high color index and hyperchromia in an anemic individual rule out the absence of an assignable cause or contributory factor (pregnancy, Dithionitecephalus latus infestation) There can be no doubt about the striking clinical features, when recognized of this syndrome The ordinary case of anemia, secondary to known cause, does not present these features I have recently seen, however, a number of patients who presented such symptoms as glossitis and

spooned finger nails, although their anemia could be definitely assigned to some such cause as carcinoma or chronic loss of blood In these patients, however, complete achlorhydria was found It is therefore possible that primary hypochromic anemia with its various manifestations may represent part of a greater syndrome of iron deficiency ("hypoferrism") and that certain cases of anemia which are definitely secondary may also be included in this syndrome Bloomfield is of the opinion that the cases classed as primary hypochromic anemia and chlorosis constitute a syndrome without fixed characteristics, and conditioned probably by increase in menstrual bleeding

TREATMENT ³⁸

There is no feature of the disease that is quite so striking as the dramatic response to large doses of iron The effect is comparable to that of liver extract in pernicious anemia For the most part, I have used the double salt of iron and ammonium citrate in 25 per cent aqueous solution in doses of from 24 to 30 cc. (6 to 8 Gm) daily Probably because of the ammonium citrate content of the drug, gastro-intestinal disturbances such as nausea, belching and diarrhea are occasionally seen When these occur, reduced iron (FeO) may be used in 1 Gm (15 grain) capsules, from 3 to 6 Gm daily The latter medication is advantageous for several reasons the dosage does not necessitate measurement by the patient, is tasteless and does not cause gastro-intestinal irritation Furthermore, its iron content is manifestly higher as compared with iron and ammonium citrate (reduced iron, 78 per cent iron, iron and ammonium citrate, 17 per cent iron) Smaller doses of reduced iron, probably one-half those of iron and ammonium citrate, may thus be used In about two cases in ten, the precipitate rise in hemoglobin and erythrocytes with iron treatment becomes checked at a level of from 60 to 70 per cent hemoglobin, and there is no further rise even with increase in iron dosage This tendency in the present series of cases was always overcome by the addition of small doses of copper sulphate This drug may be used in solution together with the iron and ammonium citrate or in the capsule with the reduced iron Doses of 0.005 Gm three times a day were ordinarily used Liver extract, gastric extract, and a special "secondary anemia liver fraction"³⁹ were found ineffectual It is my impression that the combinations of liver or gastric extract with iron are no more effective in these cases than is iron alone

The results of treatment with inorganic iron are indeed striking The patient usually experiences on the third or fourth day a marked sense of well being and suddenly acquires a marked appetite, this often becomes ravenous There is almost immediate and rapid gain in weight, in one case (H H) the weight

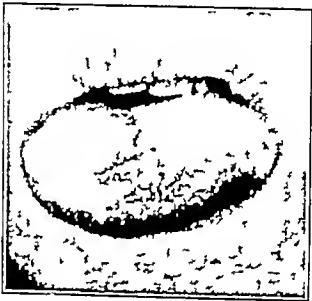


Fig 5 (case 20) —The tongue during a slight relapse which took place when the patient discontinued iron therapy There is a shiny reddened area at the tip

³⁶ Schulten Hans Zur Behandlung hypochromer Anämien mit maximalen Eisendosen München med Wochenschr 77 335 (Feb 25) 1930
³⁷ Van Noorden Karl Chlorosis in Diseases of the Blood North American Encyclopedia of Practical Medicine Philadelphia W B Saunders Company 1935 p 339
³⁸ Bloomfield A L Relations between Primary Hypochromic Anemia and Chlorosis Arch Int Med 50 325 (Aug) 1932

³⁹ A detailed account of the effects of treatment will be the subject of another publication
³⁹ Whipple G H Robscheit Robbins F S and Walden G B Blood Regeneration in Severe Anemia VII A Liver Fraction Potent in Anemia Due to Hemorrhage Am J M Sc 179 628 (May) 1930 The secondary anemia liver fraction was supplied by Eli Lilly & Co

rising from 121 to 162 pounds (55 to 75 Kg) in three months. The sensations of weakness and dyspnea, the soreness of the tongue and the gastro-intestinal disturbances rapidly disappear. Pallor rapidly diminishes so that the change in color of the face and mucous membranes is striking even from week to week. The most remarkable objective changes are those seen in the tongue. Its red, shiny appearance due to absence of papillae gives way in the course of a few months to an appearance that is completely normal. The papillae have regenerated, the shiny red appearance has disappeared, and a normal coat is present (figs 3 and 4). Marked changes in the tongue occur even from week to week. The papillae may at times regenerate in small islands, the entire tongue gradually becoming normal when these islands become confluent. The nails become less brittle, the skin becomes less wrinkled and flabby, and the hair becomes less dry. In one patient with the signs of combined system disease there was slight though definite improvement in the neurologic signs of that disorder.

The blood shows on the third to the fifth day a definite increase in reticulocytes, which reach their peak on the fifth to the seventh day. The blood platelets become markedly increased—in one patient rising from 40,000 to 1,250,000 per cubic millimeter. The white blood cells increase as a result of an augmentation of polymorphonuclears. Most striking, however, is the rise in hemoglobin, which is paralleled by the rise of erythrocyte count. Within two to four months, normal values for hemoglobin and red blood cell counts are reached, and polycythemia may even be produced. There is a tendency to relapse when medication is discontinued, and maintenance doses of about 1 Gm of iron and ammonium citrate or 0.5 Gm of reduced iron daily are required.

SUMMARY

1 The clinical features of twenty-five cases of primary hypochromic anemia were studied.

2 The disease is characterized by the presence in adult women of a chronic idiopathic "secondary" anemia, subject to remissions and relapses.

3 It presents the following clinical features:

Symptoms—Weakness, dyspnea, gastro-intestinal complaints, sore tongue, paresthesias, weight loss.

Signs—Pallor without icterus, wrinkled, atrophied, inelastic skin, glossitis, brittle, often spooned, finger nails, dry, gray hair.

Blood—Anemia of low color index, hypochromia of the red blood cells, small average red blood cell diameter, leukopenia, and reduction in blood platelets.

Gastric Juice—Achlorhydria, usually complete, small volumes, increased mucus.

Response to Medication—Prompt and striking response to large doses of inorganic iron, small doses of copper sulphate of benefit when the anemia becomes "fixed."

4 Certain cases are associated with pregnancy, dysphagia (Plummer-Vinson syndrome), gastrectomy and gastro-enterostomy, myxedema and tapeworm infestation. The common feature is achlorhydria.

5 On the basis of striking response to treatment with inorganic iron there is a possibility that an iron deficiency is present. It is possible that absence of free hydrochloric acid from the gastric juice may result in poor absorption of food iron from the gastro-intestinal tract.

A SUCCESSFUL TREATMENT FOR STRYCHNINE POISONING

REPORT OF ELEVEN CASES

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The importance of an adequate method for treating strychnine poisoning in man has been stressed editorially in *THE JOURNAL*,¹ and the recent literature reviewed.

Three of the cases in this report were mentioned by Zerfas and McCallum² and are included for a critical analysis of this method of treatment when complicated by the previous use of morphine, apomorphine, ether, or gastric lavage.

A successful treatment for any poisoning must do one of three things: (1) empty the stomach before the poison is absorbed, (2) prevent the absorption of the poison, or (3) counteract the systemic effects of the poison. The stomach pump and various common emetics, including oily substances, have been tried, but the difficulty with this line of treatment, because of the solubility of strychnine, has been that, at the time symptoms are noted, much of the poison has been absorbed and such measures (except possibly the use of apomorphine) either induce convulsions or increase their severity. Lard, oily substances, tannic acid, tannin, potassium permanganate, and dilute iodine have been given with the idea of rendering the strychnine inert or preventing its absorption, but again these are of value only before symptoms are noticed.

Antidotes to counteract the systemic effects of the poison have been given in the attempt to control the convulsions, to eliminate the poison, and to supply oxygen to prevent asphyxia. Death in strychnine poisoning is due either to exhaustion or to asphyxia. Among the antidotes that have been used in an attempt to counteract the systemic effects of this drug are bromides, alcohol, apomorphine, morphine, calabar bean, camphor, nicotine, amyl nitrite, physostigmine, chloral hydrate, paraldehyde, chlorbutanol, chloroform, ordeal nut, atropine, curare, ether and oxygen. Bleeding was once resorted to in an attempt to help eliminate the poison, and, more recently, intravenous saline solution,³ magnesium sulphate, and dextrose have been used with better results on animals. The rhythmic movements of artificial respiration⁴ have been used with good results. In animals, anaphylaxis,⁵ and acidosis⁶ caused by uranium salts, ammonium chloride, and carbon dioxide protect against a lethal dose of strychnine.

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Drs C B Hathaway, John Emhardt, Jewett Hord, M E Whitlock, H W Goss, D G Bernoske, George Moses, J D Rogers, L W Painter, K C Smithburn, M L Ruth, F F Furstenberg, and E Lamb cooperated in the study of the cases reported.

¹ The Treatment of Strychnine Poisoning editorial, J A M A 98 1992 (June 4) 1932.

² Zerfas L G and McCallum J T C. The Clinical Use of Sodium Isoamylethylbarbiturate, *Anesth & Analg* 8 349 (Nov-Dec) 1929.

³ Kleiner, I S, and Meltzer S J. Reduction of Toxicity of Strychnine by Simultaneous Administration of Large Quantities of Indifferent Fluids, *J Pharmacol & Exper Therap* 9 359 (March) 1917.

⁴ Gies, W J, and Meltzer S J. Artificial Respiration and Strychnine Spasms, *Am J Physiol* 9 1, 1903.

⁵ Arloing F and Langeron L. Action preventive du choc anaphylactique sur l'intoxication expérimentale par la strychnine. *Compt rend Soc de biol* 91 73 (June 20) 1924.

⁶ Wenner W T and Blanchard, E W. The Effect of Acidosis in Strychnine Poisoning, *Am J Physiol* 90 83 88 (Sept) 1929.

Of the antidotes named, ether, chloroform and chloral hydrate are most frequently resorted to today in attempting to control the convulsions. The difficulty with these is that, if the quantity of strychnine absorbed is large, the amount of these drugs required to control the convulsions, once they have started, is apt to be sufficient to depress or stop respiration and thus defeat their purpose. Morphine in sufficient quantity to control the convulsions is likely to prove fatal, and apomorphine,⁷ while useful, may not be adequate.

A drug that can be given intravenously in just a sufficient amount to control the convulsions, which does not in that amount depress the respirations, to which strychnine itself appears to have some powers as an antidote, and which does not markedly depress the circulation, would seem to meet the requirements of an ideal antidote for strychnine. With such an antidote, the questions of exhaustion and asphyxia take care of themselves, and elimination, which usually continues by way of the kidneys for about three days,⁸ may be disregarded.

REPORT OF CASES

Ten cases in which sodium isoamylethylbarbiturate (sodium amytal) and one in which sodium pentobarbital was used are presented.

CASE 1—V H, a white woman, aged 19, well developed and well nourished, was brought into the Indianapolis City Hospital at 5 15 p m, Oct. 26, 1928. She had taken 100 one-thirtieth grain (0.002 Gm) strychnine sulphate tablets at 1 p m after a heavy meal. She had been given morphine one-half grain (0.03 Gm), hypodermically, about fifteen minutes before admission. She was having mild convulsive twitchings at this time and an attempt at gastric lavage was made. She immediately had a severe generalized convulsion with opisthotonos, trismus, risus sardonicus, complete extension of the extremities, and cyanosis. Attempts to induce ether anesthesia increased the convulsions. She had five such convulsions in fifteen minutes, and, during the fifth, she was given 8½ grains (0.55 Gm) of sodium amytal intravenously. The convulsion stopped and the patient relaxed completely and went to sleep. At 7 30 the patient aroused, drank a glass of water, and dropped back to sleep. She roused slightly at 10 o'clock and, at this time, appeared to be slightly hypersensitive, but she soon fell asleep again and had no further convulsions. She was transferred to the ward where for two days she suffered from a rather severe gastritis, which caused her to vomit frequently. On the third day she was normal and was released from the hospital. This is the first case of strychnine poisoning treated with sodium amytal.

CASE 2—J B, a white man, aged 20, a soldier, took 200 one-thirtieth grain (0.002 Gm) chocolate coated strychnine sulphate tablets at about 4 15 p m, Feb. 10, 1929. He was said to have had one convulsion from which he became cyanotic before the physician arrived at 4 45, at which time he was given one-fourth grain (0.016 Gm) of morphine hypodermically. At 4 50 he was given a gastric lavage at the Indianapolis City Hospital, and, between 5 05 and 5 25, he had mild muscular twitchings which gradually increased. Before they became complete, however, he was given 12 grains (0.78 Gm) of sodium amytal intravenously. This was sufficient to relax him completely and put him to sleep. He awakened at 8 o'clock and complained of being hot but he dropped back to sleep. He aroused several times, and at 10 o'clock he vomited after drinking a glass of water. He showed no signs of irritability from strychnine after the administration of sodium amytal and the following morning awakened feeling very thirsty and slightly weak. At 11 a m he was able to walk unassisted to the military ambulance.

CASE 3—B O, a white woman, aged 24, well developed and well nourished, was admitted to the Indianapolis City Hospital, June 24, 1929, within an hour after taking ten strychnine tablet triturates, which were of not less than one-half grain (0.03 Gm) each. Apomorphine, one-sixth grain (0.01 Gm), was administered by a physician about half an hour after she took the strychnine. Morphine, one-fourth grain, was given in the home by the ambulance physician, and, during the trip to the hospital, she had three convulsions, during which she completely emptied her stomach and during which she became cyanotic. At the hospital she was given another one-fourth grain of morphine, which did not control her convulsions. Some twenty minutes later she was given 10 grains (0.65 Gm) of sodium amytal intravenously. She immediately relaxed and fell asleep. The patient slept all night and most of the next day, on the evening of which she signed her own release and went home.

CASE 4—R M, a white man, aged 56, well developed and fairly well preserved, was admitted to the Indianapolis City Hospital, Feb. 19, 1930, at 8 30 a m, after having taken 2 grains (0.13 Gm) of strychnine at 7 30 a m. On admission the temperature was 101 F, the pulse 140 and rate of respiration 32, he was having muscular twitchings and mild convulsions. At 8 45 he was given 7½ grains (0.5 Gm) of sodium amytal intravenously. He relaxed and slept until 10 o'clock, when he awakened and had three mild convulsions in about thirty minutes. The patient's stomach had not been pumped and it was not washed later, so the 2 grains of strychnine that he had taken was absorbed. The convulsions were increasing in severity, so, at 10 40, another 7½ grains of sodium amytal was given intravenously, after which he relaxed and went to sleep. At 11 30 he could be partly aroused, but he did not show signs of strychnine irritation. He slept until about 5 p m, when he awakened sufficiently to take small amounts of fluids. The temperature, pulse and respiration rate were 100, 120, 28, respectively. After this, he slept most of the night. The next morning he complained of some stiffness of the muscles, which apparently was due to the severe contractions during the convulsions of the previous day. He was able to sit up and was sent home, apparently in good condition, that afternoon.

CASE 5—L R, a white man, aged 19, well developed and well nourished, with a palpable thyroid, took 3 grains (0.2 Gm) of powdered strychnine sulphate in a gelatin capsule at 11 p m, April 15, 1930, and had a convulsion at 11 30. This convulsion was controlled with ether, and the patient was transferred to the hospital under anesthesia. At 11 45 he was markedly hypersensitive, mentally very alert, and apprehensive. At this time he was given intravenously 15 grains (1 Gm) of sodium amytal, which was sufficient to produce sound sleep. At 3 30 a m, April 16, the patient was completely awake, described to the nurse his convulsion, and complained of extreme thirst. Ten minutes later he began twitching at intervals, and twenty minutes later he had a severe convulsion, lasting three minutes, after which he fell asleep. At 5 o'clock he was hypersensitive and was given 7½ grains of sodium amytal intravenously, from which he awakened fully at 10 30. Although the patient did not have a gastric lavage, he complained of nausea and gastric distress, and at 5 p m he vomited. At this time he also complained of feeling very tired and of cramps in his muscles. April 17, at 9 30 a m he again vomited, but he was able to eat at noon and did not show further evidence of gastritis. His condition was apparently good, April 18 and on April 19 he was released. Urine specimens for three days contained strychnine.

CASE 6—M D, a white woman, aged 30, well developed and well nourished, apparently in good physical condition, took a quantity known to be more than 8 and less than 12 grains of powdered strychnine sulphate at about 2 30 a m, May 27, 1930. About 2 45 she began to have twitchings and mild convulsions, and she was brought into the hospital at 3 20 in complete convulsions with opisthotonos and cyanosis. Seven and one-half grains of sodium amytal given intravenously at 3 30 was sufficient to quiet her, but not enough to allow a gastric lavage. At 3 40, after another 7½ grains of sodium amytal had been given intravenously, a gastric lavage was done and the stomach found empty. The patient was partly awake and attempted to vomit after the lavage. She remained quiet

⁷ Martin J. S. cited by Haggard H. W. and Greenberg L. A. *Artificial Strychnine Poisoning*. J. A. M. A. 95: 1133 (April 2) 1932.
⁸ Walter K. A. and Ekkelester Cary. *Fate of Strychnine in the Body*. J. Pharmacol. & Exper. Therap. 10: 281 (Oct.) 1917. *Newman Case Studies in Strychnine*. 1913: 30-31. (Nov.) 1926.

until about 4 15, when she began groaning and having muscular twitchings Six grains (0.4 Gm) of sodium amytal intravenously at 4 20 was sufficient to keep her asleep until we attempted to give her an intravenous injection of physiologic solution of sodium chloride at 5 30 She was given 7½ grains of sodium amytal followed by 750 cc of physiologic solution of sodium chloride intravenously with the idea of increasing diuresis In spite of the fact that she had had 28½ grains (1.8 Gm) of sodium amytal intravenously between 3 30 and 5 30, she was awake at 7 30 She was very groggy from the sodium amytal but did not show hypersensitivity from strychnine At 9 o'clock she was given a high colonic flushing with a gallon of tap water and did not show any signs of strychnine poisoning during the process During the morning she was awake and restless but slept at intervals, and during the afternoon and that night she slept very well The next day she was awake and rational but complained of some gastric pain and of sore muscles, which disappeared during the day She was released the following day, May 29, in good condition and apparently fully recovered

CASE 7—E W, a white woman, aged 20, apparently normal, was admitted, Aug 27, 1930, to the Indianapolis City Hospital approximately half an hour after taking two one-fourth grain tablet triturates of strychnine sulphate on an empty stomach While in the ambulance she became markedly hypersensitive and began having muscular twitchings, for this reason she was

in convulsions and showed only hypersensitivity She was given 6 grains (0.4 Gm) of sodium amytal by mouth at 1 35 p m, and at 3 o'clock one-fourth grain of morphine Because of mild convulsions, at 3, 5 10 and 6 30, she was given 9 grains (0.6 Gm) of sodium amytal by mouth At 6 50 she was again in convulsions and at this time was given 6 grains of sodium amytal intravenously At 8 o'clock she required another 7½ grains intravenously The patient slept until 3 p m the following day She was apparently well at the end of the third day and was dismissed from the hospital on the sixth day

Case 9 is interesting, as 33 grains (2.1 Gm) of sodium amytal had to be given by mouth, because a sterile ampule was not available, and in that 13½ grains (0.87 Gm) had to be administered intravenously later This patient might have been spared the large dose of 46½ grains (3 Gm) of sodium amytal had it been used intravenously in the first place However, she probably had ingested much more than 8 grains of strychnine

CASE 10—L S, a white man, aged 33, took 8 grains of powdered strychnine at about 7 a m, April 4, 1932 He was brought to the Indianapolis City Hospital immediately and his convulsions were controlled with ether He was allowed

Analysis of Eleven Cases of Strychnine Poisoning with Recovery

Case	Date	Age	Weight		Strychnine, Amount Ingested				Sodium Amytal, Amount Required				Other Treatment				Gastric Lavage
					Grains	Mg	Mg per Kg	No of M L D (0.7 Mg per Kg)	Grains	Mg	Mg per Kg	Mg per Lethal Dose per Kg	Morphine		Apomorphine		
			Grains	Kg									Mg per Lethal Dose per Kg	Grains	Kg	Mg per Lethal Dose per Kg	
7 E W	8/27/30	20	115	52.6	½	32.4	0.6	7.1—	7.5	486	9.24	9.24	½	0.01			
4 R M	2/19/30	56	154	70	2	129.6	1.85	2.6	15	972	13.9	5.3					
5 L R	4/15/30	19	140	63.6	3	194.4	3.05	4.35	22.5	1,457.8	22.9	5.26				Yes	
1 V H	10/26/28	10	120	54.5	3½	215.7	3.95	5.64	8.5	550	10	1.70	½	0.1			
3 B O	6/24/29	24	132	60	5	324	5.4	7.7	10	648	10.8	1.4	½	0.07	¼	0.023	Much food Emesis Done
2 J B	2/10/29	20	154	70	6¾	431.5	6.15	8.78	12	777.6	11.1	1.26	¼	0.026			
9 M S	1/16/32	28	160	72.7	>8	518.4	7.13	>10.18	46.5	3,013.2	41.4	<4.06	¼				
10 L S	4/4/32	33	145	66	8	518.4	7.65	11.2	21	1,360.8	20.6	1.83				Yes	
6 M D	5/27/30	30	119	54	8 to 12	518.4	9.6 to 14.32	13.7 to 20.15	28.5	1,846.6	34.2	2.49 to 1.07				Found empty	
8 V H	11/22/30	4	40	18.2	?	?	?	?	15	972	53.4	?					
										Pentobarbital	-						
11 W T	11/24/30	48	100	72.7	1¼	51	1.11	1.58	7.5	486	6.65	4.22					

Case 9, 33 of 46.5 grains of sodium amytal were given orally case 10, 6 of 21 grains of sodium amytal were given orally Calculations were based on 0.7 mg of strychnine sulphate per kilogram as the minimal lethal dose 2.2 pounds = 1 Kg, 1 grain = 64.8 mg

given two one-fourth grains of morphine sulphate when she reached the hospital About five minutes after this she was given 7½ grains of sodium amytal intravenously, which was sufficient to put her soundly to sleep She awakened at about 8 p m and was given water and 4½ grains (0.3 Gm) of amytal by mouth The patient's stomach was not washed She awakened in the morning and expressed the desire to go home She was released in apparently good condition

CASE 8—V H, a white boy, aged 4 years, while at play, Nov 21, 1930, took an unknown number of "red tablets" About 11 a m he began having convulsions and was brought into the hospital The ambulance physician immediately gave the child 15 grains of sodium amytal intravenously and he slept until 6 30 a m, November 22 Gastric lavage was not done The temperature and pulse were elevated on the day of admission, but abnormalities were not noted the following five days, during which the child was kept for observation The parents described the convulsions as a complete stiffening out, which came on at intervals and continued with increasing frequency

Case 8 is described because it was an accidental one in which there was uncertainty about the dosage, and the amount of sodium amytal was governed entirely by that required to induce complete sleep

CASE 9—M S, a white woman, aged 28, was admitted to the Indianapolis City Hospital, Jan 16, 1932 after having taken more than 8 grains (0.5 Gm) of strychnine She was not

to awaken and was given intravenously 7½ grains of sodium amytal He did not go to sleep and was given 750 cc of physiologic solution of sodium chloride At noon he became markedly hypersensitive and had a slight convulsion Seven and one-half grains of sodium amytal administered intravenously was sufficient to quiet him but did not put him to sleep At 4 45 p m and again at 8 o'clock he was given 3 grains (0.2 Gm) by mouth because of slight hypersensitivity The patient rested well during the night and was released on the third day without further symptoms

CASE 11—W T, a white man, aged 48, took 1¼ grains (0.08 Gm) of strychnine in the form of one-fourth grain tablet triturates at 2 00 a m, Nov 24, 1930 He was hyperexcitable but did not have a complete convulsion He was given 7½ grains of pentobarbital sodium intravenously and slept until 5 30 There were no further symptoms and the patient was released after twenty-four hours This is the first case of strychnine poisoning to be treated with pentobarbital sodium

COMMENT

An analysis of the cases does not indicate that morphine had any appreciable influence on the action of the poison The patients who received morphine, and particularly the one who also received apomorphine, were more depressed Apomorphine did not minimize the patient's convulsions Ether is useful, but a review of previous cases in this hospital shows that, in one

patient, pneumonia (following aspiration of material from the stomach) caused death five days after ingestion of strychnine. Gastric lavage or the use of emetics is unnecessary.

When the data in human cases are compared with the data on animals⁹ the important point that human beings per pound or per kilogram are much more sensitive to the barbiturates is illustrated. From 5 to 10 mg per kilogram will not induce sleep in a rabbit and will not protect it from a single lethal dose of strychnine, while in human beings that amount is sufficient. This corresponds to the experience with barbiturates when used as an anesthetic on man and on animals. That the greater doses of strychnine require proportionately smaller amounts of barbiturate is clearly illustrated in the analyses of the cases treated with sodium amytal. Animal experiments indicate that sodium barbital acts too slowly to be effective when given after the onset of convulsions due to large doses of strychnine.

The comparative results on patients also illustrate the variation in susceptibility to the action of sodium amytal or to strychnine and the importance of giving intravenously a quantity just sufficient to stop the convulsions. The feasibility of having the antidote ready and awaiting symptoms becomes important when doubt exists as to whether strychnine has actually been ingested and when one is afraid of masking the action of another poison.

In only three of the cases were we able to ascertain the amount of strychnine ingested before it was necessary to administer the antidote. In most cases of accidental poisoning, particularly in children, the amount of strychnine taken is not known, and those taking it with suicidal intent frequently will not or cannot give this information.

A drug that can be given in quantity just sufficient to stop convulsions and in such a manner that a definite result may be obtained at once is almost necessary to save life. A soluble barbiturate, such as sodium amytal, sodium pentobarbital or phenobarbital sodium, is the only available drug that can, on present evidence, be safely used in this manner on human beings.

The following directions for the use of sodium amytal, sodium pentobarbital or phenobarbital sodium, based on eleven cases, and the results of animal experiments are given:

1 When sodium amytal or sodium pentobarbital is used, just enough of the intravenous preparation is given to put the patient to sleep or, if in convulsions, to stop them. (The patient will usually go to sleep).

2 When phenobarbital sodium is used, a quantity just sufficient to stop convulsions should be given, even though sleep is not induced.

3 When the patient shows further symptoms of strychnine poisoning, as indicated by heightened reflexes, complaints about noises, marked response to slight stimuli, or convulsions, the antidote should be repeated.

4 Gastric lavage is unnecessary and not advisable but may be done after the patient is asleep if adequate help is available to prevent injury or aspiration of material from the stomach.

⁹ Based on experimental work on rabbits in the Lilly Laboratory for Clinical Research, Indianapolis City Hospital and on work reported by Dawson W. T. and Taft C. H. Jr. *Suppression of Strychnine Convulsions by Barbiturates* Proc. Soc. Exper. Biol. & Med. 28: 91 (June) 1931.

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Hackett H. W. and Greenberg L. A. *Antidotes for Strychnine Poisoning* J. A. M. A. 98: 1113 (April 2) 1932.

Bailey O. W. *The Effectiveness of Pentobarbital in Antidoting Strychnine Poisoning in the Rabbit* J. A. M. A. 98: 1923 (June 7) 1932.

5 Physiologic solution of sodium chloride may be given intravenously, but this is not necessary.

6 Quiet, dark surroundings are recommended.

7 One should distinguish between the effects of the barbiturate and the action of strychnine when repeating the injection. This may occasionally present a real difficulty, and, when doubt exists, it is wise to await a mild convulsion before giving the second or third dose of barbiturate.

8 The dose to be given cannot be calculated unless one is definitely certain of the amount of strychnine ingested, the amount of strychnine absorbed, and the weight of the patient. Idiosyncrasy to either the poison or the antidote may then change it.

9 Morphine is not indicated and apomorphine may prove dangerous in that aspiration of material from the stomach may occur.

10 Ether may well be used to control convulsions until a soluble barbiturate can be given.

11 Should an intravenous preparation not be available and the patient not be in convulsions, amytal, phenobarbital, pentobarbital, or other barbiturates may be given by mouth, the amount not to exceed the equivalent of 15 grains of sodium amytal for an adult. The intravenous preparation can then be given later, if necessary.

CONCLUSIONS

1 Eleven cases of strychnine poisoning were treated successfully.

2 Sodium amytal and sodium pentobarbital given intravenously are definite life saving measures in strychnine poisoning in man.

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NONOBSTRUCTIVE EMPHYSEMA

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It has been generally believed that the underlying lesion of emphysema is primarily in the lungs. Freund's¹ contention that the disease is not essentially a pulmonary disorder but is produced by ossification of the costal cartilages and ankylosis of the costovertebral junctions has been much discussed but has received little support from more recent anatomic investigations. Two clinical types of emphysema have long been recognized. One is associated with bronchial obstruction, the other, the nonobstructive type, which has received relatively little attention, has been called "senile" or "arteriosclerotic" emphysema and has been attributed to degenerative changes in the pulmonary tissue. This investigation is concerned with the second type of the disease.

EXPERIMENTAL

At the outset the respiratory function of patients with nonobstructive or senile emphysema was compared with that of normal controls and with that of patients with bronchial obstruction.

In nonobstructive emphysema, it was noted that abdominal breathing was far more prominent than in the obstructive variety. This clinical impression was confirmed by fluoroscopic observations of the chest. The diaphragmatic excursion was greatly increased when compared to that of obstructive emphysema (fig 1). Particularly was this true when the compari-

From the Departments of Internal Medicine, Washington University School of Medicine and Barnes Hospital. Read before the Association of American Physicians, Atlantic City, May 4, 1932.

¹ Freund W. A. *Verhandl. d. phys. med. Gesellsch.* 9: 223 1859.

son was made during periods of bronchial obstruction. Moreover, in nonobstructive emphysema the diaphragmatic movements were found to be greater than those of normal individuals. The maximum excursion observed was 16 cm. In patients with pronounced

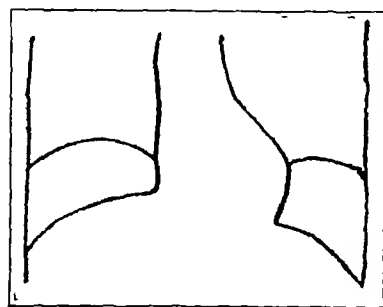


Fig 1—An orthodiagram of maximum respiration in a case of non obstructive emphysema. The diaphragmatic activity is not impaired.

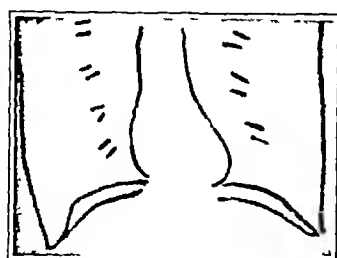


Fig 2—An orthodiagram of maximum respiration in a case of asthma with emphysema. There is marked reduction in diaphragmatic activity as compared to figure 1. These two patients were of the same general body type.

obstructive emphysema the diaphragmatic activity was diminished at times to 1 cm during deep inspiration (fig 2). Occasionally, in such cases, paradoxical movements of the diaphragm were observed.

The activity of the abdominal muscles compared to that of the chest muscles could be graphically recorded. The method consisted in placing rubber tubes of sturdy wall construction around the chest at the level of the junction of the fourth rib with the sternum, and around the abdomen 6 cm below the xiphoid cartilage. Closed circuits were made by joining the ends of the tubes. They were connected to rubber tambours, whose movements were recorded on a kymograph, and the apparatus



Fig 3—Patient with typical nonobstructive emphysema (due to disease of the thoracic spine).

was standardized so that there was a constant ratio between the force exerted on the tubes and the excursion on the drum. Simultaneous records were taken of abdominal and chest movements. The patients inhaled through a spirometer, and a measured amount of air was taken into the lungs. Quiet, moderate and deep respirations were recorded.

Tracings of obstructive emphysema showed a definite preponderance of activity of the chest wall compared to that of the abdomen. Even with attempted deep inspiration, there was little abdominal excursion. Conversely, the tracings of patients with nonobstructive emphysema demonstrated increased excursion of the abdominal muscles in contrast to diminished chest movement. Englehart,² in a study of respiratory motions, has obtained similar records in senile emphysema. When the tracings of both types of emphysema were compared to those obtained from the normal individual, it was found that in nonobstructive emphysema the abdominal activity was greatly increased, whereas in the obstructive type the thoracic excursion was greater than in the normal. As is well known, the movement of the chest compared to that of the abdomen varies in normal individuals, but the ratio is roughly one to one.

Further functional studies on each type of emphysema were compared. These included observations of the vital capacity, the oxygen and carbon dioxide con-

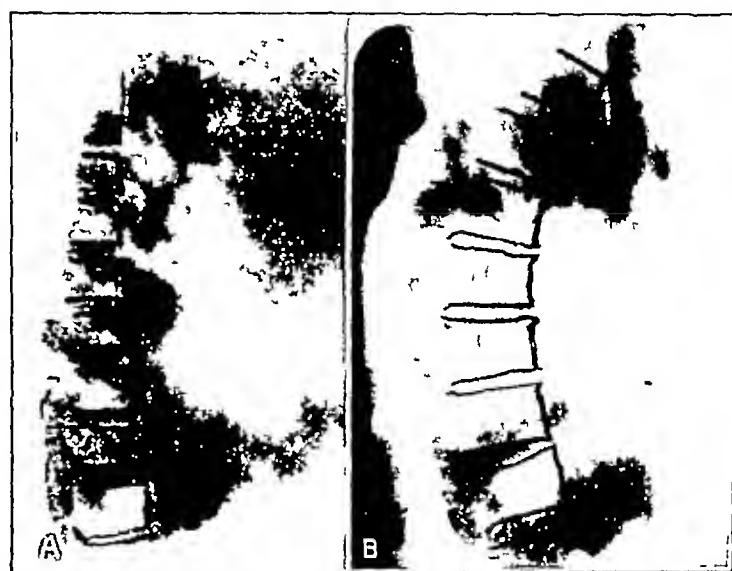


Fig 4—A, outline of roentgenogram (lateral view) of thoracic spine in nonobstructive emphysema, showing the straight poker appearance. B, outline of a similar roentgenogram in a patient with obstructive emphysema. The continuous curve of the thoracic spine may be noted.

tent of the arterial blood, the venous and arterial blood pressures, and response to increased carbon dioxide in the inspired air as shown in the tables.

The vital capacity is reduced in both types of advanced emphysema. It is, however, relatively more reduced in the obstructive than in the senile form. In the cases recorded in the tables, the percentage of normal in obstructive emphysema averages 55, while in the nonobstructive type it is 85. The arterial blood pressure is usually low in obstructive emphysema but is apt to be elevated in the senile type, which usually occurs in older people, and an associated arteriosclerosis is common. The venous pressures were found to be increased in obstructive emphysema but normal in the nonobstructive form. In obstructive emphysema the oxygen content of the arterial blood is low, even with the patient at rest, while the carbon dioxide content may be increased. In contrast to this, the oxygen saturation of the arterial blood was recorded always as normal in senile emphysema, and likewise the carbon dioxide concentration was found to be well within normal limits.

The tolerance for increased carbon dioxide in the inspired air in patients with each type of emphysema was studied. Scott³ has shown that individuals with obstructive emphysema can tolerate a considerable increase in carbon dioxide without great discomfort. It

one constant lesion is straightness and stiffness of the thoracic spine. This is particularly true in the early stages of the disease. Although this deformity is not always obvious on an inspection of the patient, it may be readily observed on lateral views of roentgenograms of the chest (fig 4) and at autopsy. In contrast to this straightening, the roentgenograms of the spine of obstructive emphysema show a continuous curve.

TABLE 2—Obstructive Emphysema

Patient	Vital Capacity, Cc	Per Cent of Normal Vital Capacity*	Arterial Blood Pressure	Venous Pressure, Cm Water	Oxygen Content Arterial Blood Volumes per Cent	Per Cent of Saturation of Arterial Blood with O ₂
1	1,800	52.0	110/80	10.0	14.2	77.0
2	1,700	50.0	105/72	8.0	16.7	87.0
3	2,400	60.0	112/75	12.2	17.7	—
4	2,200	58.0	120/80	8.5	16.8	90.0
5	2,500	55.0	107/60	7.2	15.2	—
6	2,200	48.0	130/80	12.0	15.0	86.4
7	1,800	48.0	105/72	9.5	14.0	82.0
8	1,700	43.0	115/85	10.7	16.0	90.0
9	2,600	66.0	160/90	9.5	16.5	85.0
10	2,790	72.0	130/85	13.5	10.0	90.0

* Based on Dreyer's tables.

The mechanism by which the spine assumes a more vertical position, and the influence of this deformity on the thoracic cage, was studied both clinically and pathologically. It was found that as the thoracic spine straightens the vertebral bodies separate. As the ribs are attached posteriorly to the vertebral bodies, straightening of the dorsal spine causes a separation of the ribs and a barrel shaped chest is thus produced. It is possible to demonstrate the effect of a straight thoracic

Fig 5—Chest of a normal cadaver from which all muscle has been removed. The position of the sternum is particularly noteworthy. Its upper edge stands at 15 1/4 inches on the scale.

was found that patients with nonobstructive emphysema could not stand this increase. Their response to carbon dioxide was normal, or sometimes less than normal.

From these studies, it is apparent that nonobstructive emphysema leads to very little impairment in respiratory

TABLE 1—Nonobstructive Emphysema

Patient	Vital Capacity, Cc	Per Cent of Normal Vital Capacity*	Arterial Blood Pressure	Venous Pressure, Cm Water	Oxygen Content Arterial Blood Volumes per Cent	Per Cent of Saturation of Arterial Blood with O ₂
1	3,200	89.9	160/90	5.0	18.0	96.0
2	3,400	90.8	140/80	4.5	17.4	—
3	3,500	92.0	168/76	4.5	17.2	95.0
4	3,600	83.0	200/88	0.0	18.2	94.0
5	3,300	87.4	165/87	8.2	17.6	93.0
6	2,600	75.2	175/100	5.5	18.0	94.0
7	4,000	100.0	140/87	4.0	—	—
8	3,200	87.0	175/100	4.0	—	—
9	3,700	90.0	160/90	4.4	—	—
10	3,900	96.0	127/82	5.4	18.0	94.2
11	2,700	80.0	144/95	4.5	—	—
12	2,800	83.0	120/80	5.0	—	—
13	1,500	90.0	132/82	5.5	17.5	95.0
14	1,400	83.0	210/120	5.0	—	—
15	3,600	84.0	190/100	5.5	—	—
16	3,900	92.0	187/99	5.5	18.0	95.2
17	4,000	102.0	130/87	4.5	18.1	94.5

Based on Dreyer's tables.

function, which throws much doubt on the supposition that the condition is primarily a disease of the lung. Some other explanation for the barrel chest and the hyperresonant percussion note in nonobstructive emphysema therefore was sought. It was soon noted that

1. K. W. O. Observations on the Pathologic Physiology of Chronic Pulmonary Emphysema. Arch. Int. Med. 26: 544 (Nov.) 1920.

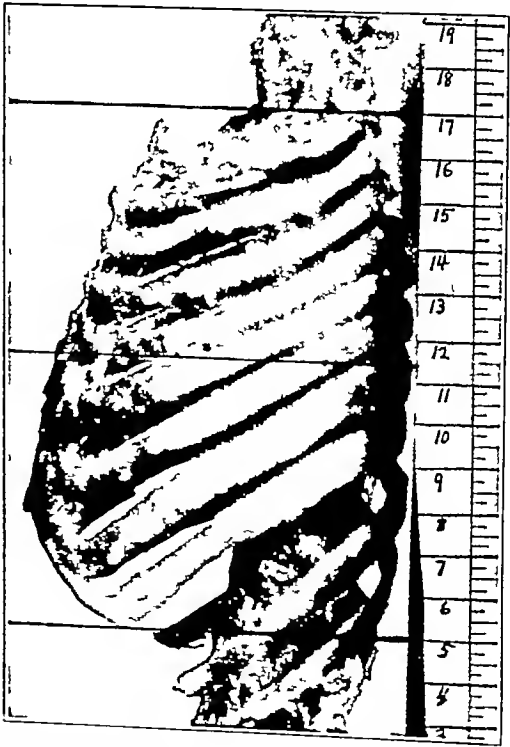


Fig 6—The same model as in figure 5. The thoracic spine has been straightened. The upper edge of the sternum has been raised to 17 inches. At the same time the depth of the chest from the spine to the sternum has been increased 3 cm.

spine on the size of the chest cavity by removing all the muscles from the spine and thoracic cage of a normal cadaver and setting the base of the spine and pelvic bones in plaster of paris. When the spine is straightened so that the thoracic curve is lost, the sternum

elevates and the horizontal thoracic diameters increase (figs 5 and 6)

The spine and bony framework of the thorax of individuals who had nonobstructive emphysema were examined post mortem. Particular inquiry was made to determine whether the costal cartilages were prematurely ossified, and also to see whether there was

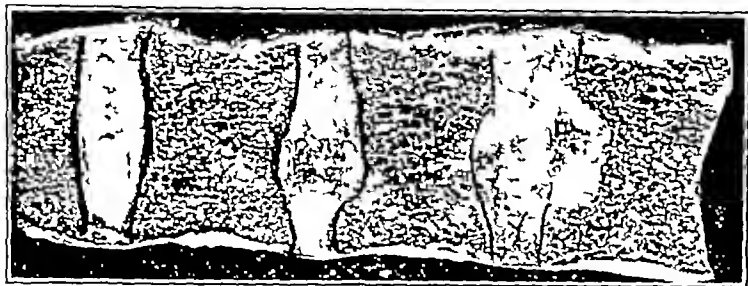


Fig 7—Cross section of disks from a case of nonobstructive emphysema. The vertical diameter of the disks measured more than twice normal.

fixation of the costovertebral joints. Ossification of the costal cartilages occurred in 70 per cent of cases of advanced nonobstructive emphysema but was no more frequent than in individuals of the same age group who did not have emphysema. Ankylosis of the costovertebral joints occurred in 20 per cent of our cases. If the view advanced by Freund were correct, one would expect to find ossified costal cartilages in all cases of emphysema of the nonobstructive type.

The most constant lesion found was disease of the intervertebral disks. This was manifested as a generalized degeneration, with swelling a marked feature. The earliest change observed was swelling in the region of the nucleus, which spread outward over the annulus lamellosus. This early process could be seen in some of the disks of a given case, while in others the degeneration was more advanced and the entire disk substance swollen. On gross inspection of a disk cut across, large fissures appeared between lumps of degen-

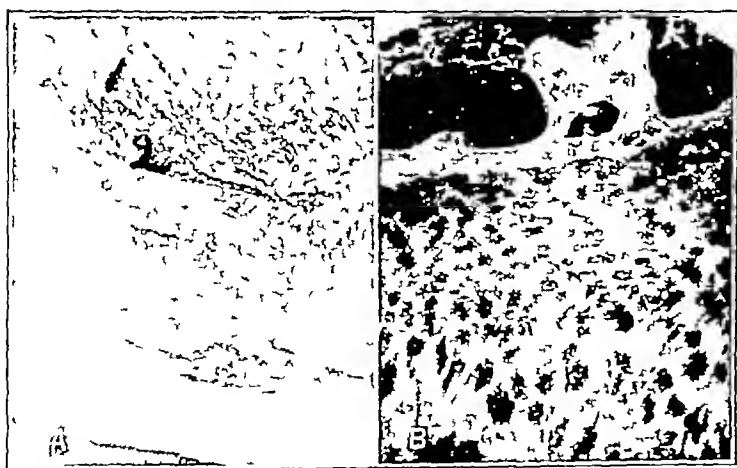


Fig 8—Sections of intervertebral disks. A, cartilage taken from a case of nonobstructive emphysema, showing (1) loss of cellular outline, (2) cavities within the substance of the cartilage, B, normal cartilage.

erated tissue. There was usually a ring of fairly healthy annular tissue left around the edge. This corresponded to the epithelial ring.

Under the microscope, the degenerative process in the cartilage was readily seen. Large fissures were present and also areas of structureless tissue that took an acid stain.

In some disks the process had advanced to the extent that the disk became functionless and completely separated from the bone. The cut surface then showed the

cartilaginous plate of the vertebral body covered with large areas of degenerated disk remnants. The layers of the annular lamella were so involved at times that the still healthy fibers were torn away from the bone at points of degeneration. Calcium deposits were occasionally observed in the degenerated disks, and these could be recognized in roentgenograms. Hemorrhage into the disks with pigmentation occurred occasionally. Eventually, the fibers and disk substance are found to undergo complete dissolution. In writing on diseases of the intervertebral disks, Beadle⁴ and Schmorl⁵ have described these lesions in great detail.

As the degenerative disease of the disk progresses, the vertebral bodies become more and more invaded by the process and finally thin out. This lesion may reach the stage at which the spine can no longer support its burden, and collapse at some point then occurs. This is found in patients in whom the degenerative process is far advanced. The upper thoracic region is most commonly affected.

When the spine collapses, kyphosis results, and the marked hump in these advanced cases of senile emphysema is a familiar clinical picture. When this occurs, the upper spine sinks away from the upper end of the sternum, which is held forward by the clavicles. The anteroposterior diameter of the chest is thus increased, and at the same time the vertical measurement of the spine is shortened. In individuals who present a kyphosis of this type, a history of loss of height may be obtained. To compensate for the shortening of the thoracic spine, the ribs flare outward and accentuate the barrel chest already present (fig 10).

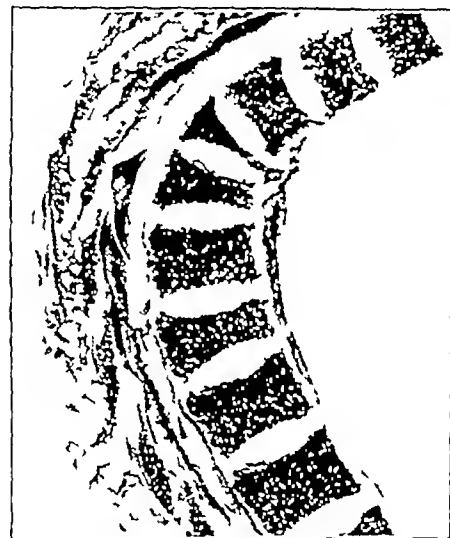


Fig 9—Section of the thoracic spine, showing the anatomic lesions of nonobstructive emphysema in the advanced stage. Note the angulation between the fourth and fifth dorsal vertebrae due to erosion of the vertebral bodies by the diseased disk.

COMMENT

Other investigators have likewise attributed the mechanism of the production of nonobstructive emphysema to abnormalities of the thoracic cage. Hofbauer⁶ suggested that emphysema with a fixed chest is due to overaction of the inspiratory muscles over those of expiration. The chest thereby gradually distends and mobilizes. We find no experimental or definite clinical evidence to support his theory.

Creyx⁷ believed he could demonstrate degenerative changes in the intercostal muscles when measured by response to electrical stimuli. He assumed that this permitted an abnormal position of the thoracic cage, which assumed the inspiratory position. We repeated Creyx's experiments, and although there is some evidence to suggest a weakness of the muscles of

4 Beadle, O. A. The Intervertebral Disks, London His Majesty's Stat Off., 1931.

5 Schmorl, G. Fortschr. a. d. geb. d. Röntgenstrahlen 38: 265 (Aug.) 1928, 40: 18 (July), 629 (Oct.) 1929, 41: 359 (March) 1930.

6 Hofbauer, Ludwig. Wien Arch. f. inn. Med. 15: 271 (May) 1928.

7 Creyx, M. J. de med. de Bordeaux 91: 227 (May 10) 1920.

respiration, we believe with Clement⁸ that such muscle degeneration is a result of bony deformity and is a secondary phenomenon rather than a primary disease of the muscle.

Freund's¹ contention that emphysema is due to ossification of the costal cartilages and to fixation of the costovertebral bodies could not be substantiated. A high incidence of the supposed etiologic factor would be expected, whereas it is discernible in but 70 per cent. Moreover, as was pointed out by von Salis,⁹ it is necessary, in order to mobilize the thorax by rib fixation, that the costovertebral joints likewise be ankylosed. This lesion occurred in but 20 per cent of our series. We therefore infer that these factors do not play an important rôle in the etiology of emphysema.

From the evidence here presented, we believe that in nonobstructive emphysema the lungs shift their posi-

SUMMARY

1 Two types of emphysema are recognized, the obstructive and the senile, or nonobstructive. Obstructive emphysema is characterized by large lungs and by impairment of respiratory function. An associated history of bronchial obstruction is usual. In nonobstructive emphysema there is very little, if any, increase in size of the lung, and but little loss of respiratory function.

2 Nonobstructive emphysema is not primarily a pulmonary disease but merely a change in the position of the lungs secondary to an increase in the size of the thoracic cage. In the advanced cases, alveolar distention with loss of elasticity occurs.

3 The thoracic deformity is due to a straightening of the dorsal spine with kyphosis in the later stages.

4 The underlying lesion is a degenerative process in the intervertebral disks.

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THOMSEN'S DISEASE (MYOTONIA CONGENITA)

REPORT OF CASE AND REVIEW OF
AMERICAN LITERATURE

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AND

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Fig. 10—The same model as figures 5 and 6 with the thoracic spine in an upright position. A portion of the fourth dorsal vertebra has been removed. Pressure is being directed downward and forward. The sternum is raised to above 17 1/4 inches on the scale. The depth of the chest at the same time has been increased 8 cm.

tion as the thoracic cage enlarges. The lateral diameters increase and the vertical diameters become shortened. This is reflected by an elevation of the domes of the diaphragm. If any actual lung distention occurs before the thoracic deformity becomes pronounced, it is not comparable to true emphysema for there is little loss of respiratory function, and when the chest is opened the lungs promptly collapse. In the advanced stages, especially with kyphosis, there is little question that the lungs are distended and even may be so stretched that alveolar rupture occurs and the elastic recoil is impaired. The process by which this lesion is produced is very different, however, from that of obstructive emphysema, which is primarily a pulmonary disorder.

Although the participation of senile degenerative changes in the lung may play some part in the production of nonobstructive emphysema, this is probably a secondary one.

About ten years ago (1922) one of us (S. E. J.) became acquainted through business channels with N. B., who lived several hours out of New York and who came under observation more as a friend than as a patient. Later, through the cooperation of Dr. Ziegler, an opportunity was afforded for a more detailed examination, and this preliminary report is offered, chiefly because of the comparative rarity of reports in American literature on this strange and intriguing malady.

It may be of some interest, noted by Pelz in his description of the atypical forms of Thomsen's disorder, that Erb, who has given the syndrome its most complete description, has written that one is weary with the monotony of the observations in this interesting malady.

In spite of this, and with no specific intention of hoping to add much to the subject, the present contribution is offered with the following thoughts: 1 In looking over various observations we were struck with a family resemblance in a photograph published by Wertheim Salomonson in 1897 of an "Adriaan de B.", and since the initials "de B." also occur in the name of the ascendants of our patient (de Boer) some contact may be established with the Dutch ancestral tree if it should be that the Wertheim Salomonson (Stumpff) case could be connected and the family tree found to be the same. 2 A brief resume may be offered of all the cases reported by American observers. 3 A still further wish on our part is that ultimately a contribution may be made in the psychologic field, which up to the present time has been definitely unexplored. This last consideration brings before the mental eye a not unrelated notion presented by the original describer himself, for it will be recalled that Thomsen was inclined to

⁸ Clement, Keert. *Presse med.* 36: 1647 (Dec. 26) 1925.
⁹ Von Salis, quoted by Clement.

emphasize what in his day might be called psychic factors, as may be seen in his final choice of a description, influenced, it may be, by Bartels (cited by Nissen) "Tonische Krämpfe in willkürlich beweglichen Muskeln in folge von erbter psychischen Disposition" (tonic spasms in voluntary muscles resulting from congenital psychic predisposition)

With reference to this threefold purpose it may be reported that inquiries are in progress to attempt to trace the Holland forebears. Secondly, this paper fulfils the object set forth, namely, the reporting of the American cases. As to the further investigation of possible psychogenic factors, this will be left to a later communication.

REVIEW OF AMERICAN LITERATURE

Some of the more general historical features have been covered up to 1887 in the paper by Jacoby,¹ and a fuller exposition is not necessary at this time. It has been thought of interest to discuss briefly the cases appearing in the American literature.

Engel² is frequently accredited with having offered the first report of a case in American literature. Jacoby has shown, however, that this is a doubtful case, as the disorder first appeared suddenly when the patient was 17 years of age, following an electric shock, and involved the lower extremities only and in a manner different from the true Thomsen type. Moreover, there was no hereditary history. This case may be rejected unless one includes it with certain cases of myotonia acquisita (Talma), examples of which Jacoby himself reported sixteen years later. In 1884, Workman gave a translation of some recent works and said he had seen a case. He reviewed Longuet's work and abstracted other historical studies.

The early reported case of McLane Hamilton³ also presented question marks and, according to Jacoby, Hamilton himself grouped his case with paralysis agitans rather than with myotonia congenita.

Jacoby's first case (1886) is classic and his description and discussion admirable, save that he could not ascertain any hereditary involvement, but he did include a most thorough report of a bit of excised quadriceps femoris muscle, Willy Meyer showing the classic changes described by Erb and others. Jacoby's description of the myotonic reaction is most thorough, and his remarks on the probable presence of embryonic sarcoblasts is of considerable interest in view of later theoretical considerations and also in regard to Erb's discussion along related lines. He writes (p. 151)

In Thomsen's disease, the motor nerves and motor endplates do not show any deviations from the normal. The nerve-impulse, therefore, is transmitted into the muscle-fiber in the same manner as in the normal condition.

The result of this reception of impulse will be a contraction which, especially after a certain rest, will be a hypercontraction, or rather tetanus. This tetanus leads to an agglomeration of a certain number of sarcois elements, with a break in the continuity of the contracted clusters, as can be plainly seen under the microscope. In consequence of this tetanus, the nerve-influence is inhibited for so long as the tetanus lasts. After the lapse of a few seconds, the tetanic contraction will subside, the continuity between the hitherto separated groups of sarcois elements will become reestablished, and the propagation of nerve-influence again rendered possible. If now, in the light

of our microscopical revelations and in consideration of the above theory, we reconsider the objective symptoms found in Thomsen's disease, we are able to understand the production of a great many of them. That the muscle becomes tetanic under the influence of the will has been explained, that mechanical and electrical stimuli applied to the muscles themselves produce a prolonged contraction is also understood, but how it is that stimuli applied to the nerve do not have the same action as those applied to the muscle is not so clear. This much is certain that the cause for this variation must be sought in some change in the nerves themselves, and not in the muscles, probably a change in their molecular arrangement, for microscopically the nerve terminations appear normal, and it is after all possible that later observations may discover changes either in the peripheral or central nervous system, which will take this peculiar affection out of the domain of primary muscular disorders to which it now appears to belong.

Dana's⁴ case, reported a year later (1887), seems atypical.

In 1886, W. A. Hammond⁵ reported the case of D. Leiden. The patient, a man, aged 28, had a brother who was similarly involved. There were no personal histories.

Moyer's⁶ case, reported in 1890, is also an atypical one. W. H., a man, aged 25, first seen in 1884, had no familial history and first noted typical intention holding at the age of 23. On first arising in the morning he did not suffer, but as the day progressed the myotonic state developed.

Hughes,⁷ in the same year, reported what seems also an atypical case. J. H. M., a man, aged 23, first noted his difficulty at the age of 20. He noted that when he attempted to put his pipe in his mouth his arms and hands would not go up. Spasms occurred in his legs which could be walked off. No hereditary aspects were mentioned. Shaw and Fleming⁸ reported the same case in much the same manner as Hughes.

Smith,⁹ in 1894, gave a clinical lecture on a patient with a disorder of the spinal cord, showing also some myotonic reactions. These developed after a fall, when he was at least 67 years of age, which caused complete paraplegia. Since this he had had cramplike myotonic reactions on initiating movements of the legs. It was not a case of Thomsen's disease.

Haynes,¹⁰ in 1897, presented a man, aged 28, who at the age of 7 first noted difficulties in speech and on protrusion of his tongue, later, following alcoholic excesses and an attack of typhoid, he became nervous and had choking spells when swallowing. This was not a case of myotonia congenita.

Preston,¹¹ in 1898, reported the case of H., a man, aged 21, whose mother had had cramps. As far back as the patient could remember he had the peculiar myotonic stiffness on initiating any movement. He had never been able to join in play. He would start to run and fall, the hand grasp would not open, the eyes would be "set," and the abdominal muscles were also involved.

4 Dana, C. L. An Atypical Case of Thomsen's Disease, *M. Record* 433, April 21, 1888, *J. Nerv. & Ment. Dis.* 15: 259, 1888.

5 Hammond, W. A. Thomsen's Disease, *Gaillards M. J.* 41: 614, 1886.

6 Moyer, H. N. Remarks on Thomsen's Disease with Report of a Case, *M. News* 57: 168, 1890.

7 Hughes, C. H. Memoranda of Examination of a Case of Neuro myotonia (Thomsen's Disease) with Remarks on Its Differential Diagnosis. *Alienist & Neurol.* 11: 51, 1890. Thomsen's Disease as an Inter current Symptom with Anterolateral Sclerosis. A Brief Case Record, *New York M. J.* 44: 62, 1886.

8 Shaw, A. B., and Fleming, A. W. Atypical Myotonia Non congenital. *Alienist & Neurol.* 11: 51, 1890.

9 Smith, A. J. A Case of Myotonia (Thomsen's Disease) Apparently Arising from Effects of a Fall, *Internat. M. J.* 3: 129, 1894.

10 Haynes, W. H. A Case of Myotonia Congenita, *J. Nerv. & Ment. Dis.* 24: 413, 1897.

11 Preston, E. J. Myotonia Congenita (Thomsen's Disease) Report of Typical Case, *M. News* 73: 863, 1898.

1 Jacoby, G. Thomsen's Disease (Myotonia Congenita), *J. Nerv. & Ment. Dis.* 14: 129, 1887, discussion, *ibid.* 15: 260, 1888.

2 Engel, A. A Case of Thomsen's Disease, *Philadelphia M. Times* 13: 849, 1883.

3 Hamilton, A. M. A Consideration of the Thomsen Symptom Complex, with Reference to a New Form of Paralysis Agitans, *M. Record* 29: 85, 1886.

It became worse in wet weather. There was well developed musculature. Electrical reactions were not absolutely typical.

Mills,¹² writing in 1891 on myotonia and inertia of voluntary effort, reported the case of a man, aged 40, who as a boy of 10 recalled that he had had the typical myotonic condition in his hands, feet, jaw and elsewhere. There were muscular hypertrophy and myotonic electrical reactions. There was no familial history obtainable.

Angell,¹³ in the same year, reported a typical case in a German who had emigrated to this country as a boy. A brother had shot himself because, while serving in the German army, he had frequently gotten himself into difficulty because of his myotonic reaction. This had happened twenty-five years previously (i.e., in 1866) and thus before the publication of Thomsen had called attention to this difficulty for soldiers. It may be recalled that one of Thomsen's motives for revealing the family secret was for just this reason, to vindicate an affected brother and a soldier from unmerited punishment. Hence, the congenital factor is shown for the first time in the American literature. Angell would add to the diagnostic signs the marked wheal-like reaction to pin prick and delayed bleeding. The myotonic difficulty had been present since childhood, and there was definite muscular hypertrophy.

Coe,¹⁴ in 1896, briefly referred to a case seen at Dr Moyer's clinic in Chicago.

Clemesha¹⁵ reported the interesting history of a patient in whom paroxysmal attacks of loss of power had been occurring for twenty years. He first noted it at about the age of 13. The case was not one of Thomsen's disease, although recorded under this title (it was more like a familial paroxysmal palsy), as he wrote that only after "two or three hours brisk walk" could the patient abort the oncoming paralysis. At first the difficulty would show itself every three or four weeks, later months might elapse. He spoke of his being attacked at night and stated that the extremities alone were involved, save at times when he was unable to rotate the head. A family tree showing involvement of three generations is given.

The American literature contained little for seven years, when Jacoby,¹⁶ in 1898, offered a second important contribution to the subject. His first patient, a West Virginia youth of Irish parentage (presented before the New York Neurological Society in November, 1897), was apparently well until the age of 18, when, two years later after an attack of typhoid, the myotonic situation developed. All the muscles were involved, including the tongue and jaw muscles. The mechanical reactions were negative, the electrical reactions, questionable. The microscopic studies were of much interest, as bits of contracted and noncontracted muscles showed different pictures.

The absence of any hereditary history and the late development requires the use of the 'acquired' hypothesis. Dr Jacoby also presented in this study a more typical 'acquired' case and a 'transitory' case (to be compared with the case reported by Down¹⁷).

Graeme Hammond,¹⁸ at the same meeting, presented two sisters and a brother with myotonia which had developed later in life. One patient was feeble-minded. The myotonic spasms were present only in the hands and arms, and there were no electrical changes. They were presented as nontypical cases.

Lord,¹⁹ in 1900, reported the cases of two brothers and a sister with atypical forms. The brother, aged 18, first noted at 12 that he had difficulties in the thigh muscles, which would limber up after two or three movements. He would stub his toes and fall. If he sneezed, there would be an abdominal spasm. His fists would not release. Cold and dampness increased the difficulty. He had great difficulty in milking. There were large hypertrophied muscles with mechanical irritability. A brother is reported to have had the same trouble. He was not examined. A sister, aged 23, would have periodic myotonic difficulties, especially at the menstrual epoch. She was all right as soon as the flow began.

Gardiner,²⁰ in 1901, reported the case of a boy, aged 6 years, whose mother stated that during her pregnancy she had had difficulties in muscular adaptation of the myotonic type. She fell frequently. After delivery, she had no further trouble. Her child, however, had all the classic difficulties from birth. Here there was also a gradual hypertrophy of the musculature and mechanical reactions.

J. T. Jones,²¹ in 1900, reported the case of two brothers suffering from Thomsen's disease. W. M., aged 25, always in difficulty in games by reason of checking, had well developed muscles. He had trouble with all initial movements, with gradual easement on repetition. The arms and legs were worse, with mechanical and electrical reactions as described by Erb.

E. M., aged 21, had manifestations similar to his brother's, the electrical reactions being less pronounced.

Zahorsky's²² case, cited as myotonia congenita in the literature, was a case of Oppenheim's disease (myotonia congenita).

Carncross,²³ in a brief society transactions report, recited the case of a man, aged 21, who had noted the stiffening reaction at the age of 2. Marked muscular hypertrophy and great strength were present as well. Atrophy set in at the age of 17. All his muscles, including the tongue, were affected. There was a negative family history save that the mother had had some facial spasms. In the discussion, Dr F. X. Dercum referred briefly to a bricklayer who showed the myotonic reaction and Dr D. J. McCarthy to three cases that he had seen in Jolly's clinic in Berlin.

Meara,²⁴ in 1905, reported the case of a rather sickly boy, aged 10 years, who at the age of 2 noted that the stiffness in his gait increased in summer to nonconvulsive rigidity. The more sudden the motion, the greater the stiffness with later regained power. He was sensitive and emotional, he was stocky and had a squint when younger. His smile was slow, with a tendency to tapir mouth. He had a muffling speech, and there was excellent muscular development. There was an

12 Mills, C. K. Myotonia and Athetoid Spasms. Internat. Clinics 2:24, 1891.
13 Angell, F. B. Thomsen's Disease. Report of a Case. J. Nerv. & Ment. Dis. 15:80, 1891.
14 Coe, H. W. Thomsen's Disease. M. Sentinel 4:15, 1896.
15 Clemesha, J. C. Thomsen's Disease. A Family History. Buffalo, N. Y. 3:110, 1897.
16 Jacoby, C. On Myotonia. J. Nerv. & Ment. Dis. 25:53, 1898.
17 Down, E. Report of Case of Myotonia. Boston M. & S. J. 1:10, 1871.

18 Hammond, Graeme. J. Nerv. & Ment. Dis. 25:527, 1898.
19 Lord, S. A. Two Cases of Thomsen's Disease and One of Transient Myotonia Occurring in One Family. Boston M. & S. J. 142:249, 1900.
20 Gardiner, C. F. A Case of Myotonia Congenita. Arch. Pediat. 17:925, 1901.
21 Jones, J. T. Two Cases of Myotonia or Thomsen's Disease Occurring in the Same Family. Occidental M. Times 14:316, 1900.
22 Zahorsky, H. Myotonia Congenita. Am. J. Obst. 62:1132, 1910.
23 Carncross, H. A Case of Thomsen's Disease with Pseudomuscular Hypertrophy. J. Nerv. & Ment. Dis. 30:490, 1903.
24 Meara, F. S. Myotonia Congenita or Thomsen's Disease. A Case. Arch. Pediat. 22:812, 1905.

Erb galvanic reaction There was no familial history. He came of American stock. Meara's case is of special interest in that few observations have been reported on the incidence of the disease in young children, although both Thomsen and Friis report early incidence.

Clark and Atwood,²⁵ in 1907, reported the case of a man, aged 23, of Scotch parentage, whose sister was said to have had the same difficulty since the age of 10. An older brother had similar difficulties. When at 10 he would start to run, he would fall. He recovered completely. The patient had an athletic build. The myotonic movement reaction was in the legs and arms chiefly, the face was not involved. Erb and mechanical reactions of Thomsen's disease were present.

Atwood²⁶ presented the case just noted at a meeting of the Neurological Society. In the discussion, Dr Jacoby was inclined to class it with Erb's irregular forms.

Birt's²⁷ case is of special interest, particularly as he reported his own difficulty. Birt's report stands out as a classic similar to that of Thomsen and also is to be compared with Nissen's later study. No case had been reported in the Canadian literature up to 1908, nor has been since. Birt prepared the study of his own case as an Edinburgh doctorate thesis—the full details have never been put in print, especially the myographic and similar studies. He made the diagnosis on himself as a medical student.

He had always had the difficulty. He could recall its annoyances from early childhood. At 7 it was called rheumatism. He fell frequently. He was strong and muscular early. Practically all his muscles were involved, the von Graefe sign was apparent. The mechanical and electrical reactions were typical and he had a bit of his muscle excised for examination, which showed the usual picture. Cold and emotional influences and fatigue increase the difficulty. Small doses of alcohol facilitated his motions. The family tree was typical. At the age of 68 he²⁸ is well, he still has myotonia, but no atrophies or other changes have taken place.

Rudolf,²⁹ in 1910, continued the story of Dr Birt in a reprint, with notes on the original description by Birt.

Down,¹⁷ in 1908, reported a case with negative hereditary history with the more essential features of the acquired type of the disease. A man, aged 56, a gardener, had had a probable cerebral concussion twenty years earlier, but the myotonic symptoms were of only recent happening and lasted but a year. This case can hardly be grouped with the Thomsen series.

Sedgwick,³⁰ in 1910, made a definite contribution to the presence of von Graefe's symptom, which had been known to only a few (Oppenheim). He traced this particular manifestation through a family tree with five generations. In many, the myotonia had been overlooked.

Boot,³¹ in 1913, reported typical cases in a family in which the father and mother were first cousins. The patient's mother had had the same trouble. Of three siblings in the family, two were involved with the

classic manifestations. E. H., a man, aged 21, had been involved since infancy and well noted at 5, when he fell frequently. He could never start a fight and hence was always knocked out before he could begin. In military school he had great difficulties in drill. His ciliary muscles were also involved, as was the diaphragm and his speech. The cold made him much worse.

Rosenbloom and Cohoe,³² in 1914, offered a metabolic analysis with the view of determining the nature of the calcium metabolism. The patient, G. M., an Austrian, first noted his difficulty as early as the age of 12.

W. A. Jones³³ contributed a brief note in 1915. Mrs. E. S., aged 41, whose mother was said to have been involved but whose siblings were not, recalls that as a little girl she had clumsy hands. Her tongue would be stiff as she started to talk or eat. Sometimes she could not open her jaws. At the age of 36, she had similar spastic conditions in her legs. She had the mechanical-electrical characteristics, and a bit of excised muscle showed hypertrophy of fibers and nuclei. Cold always made her worse.

Toomey,³⁴ in 1916, reported in a family of Irish parentage some intermittent cases, he saw five out of eight members in two generations. These cases were more cramplike, and the spells lasted a week or so. Up to that time Toomey reported 400 cases listed in the *Index Catalogue of the Library of the Surgeon General's Office* and the *Index Medicus*. A short bibliography of the intermittent cases is given.

Taylor³⁵ briefly discussed a sporadic case in an Italian, aged 24, with no hereditary history. Symptoms began at 10 and behaved intermittently, being worse in the morning and easing up later in the day. The patient was of an athletic type. The cranial nerves were not involved.

Frink,³⁶ in a short society note in 1917, reported the case of a school boy, aged 10 years, of Spanish parentage, with a negative family history. He always had difficulty in walking but could run well if he practiced a bit. His condition improved (?) with thymus.

Morrison,³⁷ in 1920, reported the case of a farmer, aged 34, with heavy muscles. At 10, he noted intensive rigidity. His mother had also had it but later in life was free. All his muscles were involved, and he had prodigious strength.

Rosett,³⁸ in 1922, offered, albeit in an English journal, the most thorough study of the disorder, founded on material studied in the United States. His family was originally English, and the histories of three generations were recorded. Anna H. L., the grandmother, born in Derbyshire, had the "stiff" phenomena characteristic of the disease. There were six surviving children. Three of these, Herbert L., aged 33, Louise W., aged 35, and Sarah E. M., had myotonia congenita. Two other brothers and a sister were free from the muscular disturbance but had mental disturbances. The oldest girl, Laura C., was nervous and had depressed and irritable

32 Rosenbloom, Jacob, and Cohoe, B. A. Clinical and Metabolic Studies in a Case of Myotonia Congenita Thomsen's Disease, *Arch. Int. Med.* 14: 263 (Aug.) 1914.

33 Jones, W. A. Myotonia Congenita, *J. A. M. A.* 65: 615 (Aug. 14) 1915.

34 Toomey, N. A Family with Myotonia, Probably Intermittent Form of Thomsen's Disease, *Am. J. M. Sc.* 152: 738 (Nov.) 1916.

35 Taylor, E. W. Sporadic Thomsen's Disease, *J. Nerv. & Ment. Dis.* 44: 347, 1916.

36 Frink, H. W. Myotonia Congenita, *J. Nerv. & Ment. Dis.* 45: 349, 1917.

37 Morrison, M. M. Myotonia with Report of a Case, *Texas State J. Med.* 12: 249 (Oct.) 1920.

38 Rosett, J. A Study of Thomsen's Disease Based on Eight Cases in a Family Exhibiting Remarkable Inheritance Features in Three Generations, *Brain* 45: 1 (June) 1922.

25 Clark and Atwood. *New York M. J.*, July 20, 1907.

26 Atwood, C. E. A Case of Congenital Myotonia (Thomsen's Disease) Associated with Ophthalmic Migraine, *J. Nerv. & Ment. Dis.* 34: 598, 1907.

27 Birt, Arthur. A Study of Thomsen's Disease (Congenital Myotonia) by a Sufferer from It, *Montreal M. J.* 37: 771, 1908.

28 Birt, Arthur. Personal communication to the author, 1932.

29 Rudolf, R. D. Thomsen's Disease (Congenital Myotonia), *Canada Lancet* 44: 679, 1910.

30 Sedgwick. Von Graefe's Sign in Myotonia Congenita, *Am. J. M. Sc.* 140: 80, 1910.

31 Boot, G. W. A Case of Congenital Myotonia, *J. A. M. A.* 61: 2237 (Dec. 20) 1913.

attacks "just like her mother." A brother, W L, Jr, had short attacks of "nervousness," in which he was "out of his mind." These attacks were of short duration. Harry L had general "nervousness," had been very despondent at times, and had attempted suicide.

The third generation was represented by ten children. Of these, Rosett was able to examine three who had myotonia congenita. Lorraine L, aged 7, was the daughter of Herbert L. Mildred, the daughter of Louise W, had a typical myotonia. The report concerning Mildred was full and detailed. Mabel W had typical Thomsen's disease. It was noticed that when she sneezed her eyelids would remain closed. Nathalie W, aged only 3 years and 6 months, showed this sneezing reaction but otherwise no myotonia.

Rosett entered into a discussion of the mechanism of the muscular action and laid considerable stress on what is here called psychic or emotional stimulus. The "resistance of unrelaxed antagonists" seems the most consistent situation. He weighed the hypothesis that the frequently found atrophy might be interpreted as an overaction of the unrelaxed antagonists. The participation of the facial muscles seemed to him to negate this idea. A "neuritic" element seemed to be present in some patients, pain and diminution of reflexes being partial evidence in this direction.

Rosett then discussed fully the heredity of the large musculature. A sublethal inherited factor was posited as behind the frequently found atrophy.

This sublethal factor may be represented in different structural components of the disorder. Sometimes the pseudohypertrophic muscles, sometimes the neural elements, either central or peripheral. If central, the psychotic trend is thought to be explained.

The fear of ridicule and the tendency on the part of involved members to conceal their infirmity was touched on by the author as contributing to the difficulty in learning more about this disorder.

A B Jones,³⁹ in 1927, presented a brief clinical note.

Barker,⁴⁰ in 1930, presented at a clinical lecture a housewife, aged 43, of Italian origin, whose one sister and a cousin on the father's side were also involved. Two children, aged 16 and 6, were free. The patient noted that at 10 she easily fell over when her brother pushed her. She had the typical myotonic reactions in the hands, muscular hypertrophies, and mechanical and electrical reactions.

CLINICAL HISTORY OF AUTHOR'S CASE

History.—N B was 28 years of age when I first learned that he had such a difficulty. He was of Dutch ancestry. His parents had moved to England, where he was born. He came to the United States as an infant. His parents, so far as he knew, were not closely related. Only his mother was alive when I first met him; his father had died at the age of 63 of an apoplectic stroke. The father's mother's family name was Arions; the mother's Mcurs and her mother he thinks was a de Boer. The mother died at the age of 67 of a heart disorder. She also had myotonia. The family tree will be discussed later.

The patient states that he has had his difficulty ever since he can remember. It was a special source of chagrin to him as a boy of 6, 7 or 8 years when the kids were having a bonfire and suddenly a policeman appeared and the familiar cry of "Cheese, it the cop!" was called. He was always the goat. He would start to run, his muscles would stiffen up, and he would fall on his nose and get caught. In playing baseball,

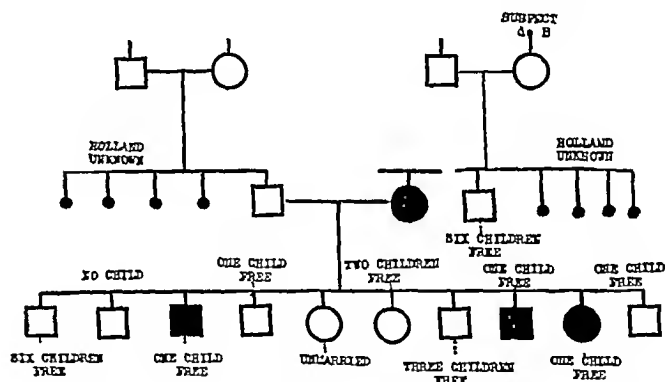
unless he danced around the plate and swung his bat freely, he could not start to run. It has been that way ever since.

If there are two steps on a trolley car it is all right, but if he must go up more than two steps he is in trouble. The legs stiffen; there is no spasm, they are just stiff. He cannot lift either foot high enough to make the next step, and, if he does not wait and make the third slowly, and then the fourth and then with increasing facility the others, he will stumble and fall. When he gets started he is as limber as any one.

There are no voluntary muscles of the body that seem to have escaped. The familiar closing of the fist experiment is classic, walking is the same. In closing his eyelids he has the same difficulty. It is a strange symptom at times that when talking and he yawns, his tongue stiffens and he is unable to talk for a moment. He dare not dive into the water for a swim but can go in gradually from a dock, limber up and be all right.

One experience stands out with vividness because of its annoying consequences. In 1928, while riding in the Hudson Tunnel to New Jersey, he became engrossed in his newspaper. The Journal Square station was reached and he suddenly realized that he had to change cars there. He arose quickly and succeeded in getting to the opening of the subway train, when his legs got stiff, he barely managed to get out and fell back against the side of the car, now in motion. He had presence of mind enough to shove himself away from the moving train and fell flat on the platform.

Examination.—He has the usual well developed, almost hypertrophic musculature. He is well built, about 5 feet



The family tree. The squares in the chart indicate males, the circles females. The solid black figures show involvement with Thomsen's disease.

7½ inches (170 cm) tall, and weighs about 140 pounds (63.5 Kg).

A neurologic examination by Dr Ziegler revealed the following in 1932:

The cranial nerves show no marked neurologic anomalies.

There are no anomalies of smell or of sight. He wears glasses for a mild degree of myopia. The fundi are normal.

Ocular movements are free in all directions. He has not been aware of any stiffening in these muscular movements. The pupils are equal and react to light and in accommodation freely. There is slight nonsustained horizontal nystagmus. The von Graefe sign is present when he closes his eyes.

As already noted, the tongue and jaw muscles are often involved in the myotonic fixation, but there are no gross disturbances of the fifth or the seventh nerve in motility or sensation. There is slight facial asymmetry.

The muscles of the arms are well developed but not markedly hypertrophied. There are no anesthesias nor palsies. Mechanical tapping of the muscles produces the well known local bulging of the muscles with slow subsidence. This is quite marked on tapping of the thenar eminence. The characteristic stiff holding reaction is present in all the voluntary movements. Fist closing, hand shaking, quick jerking—as in fishing—are impossible. There is even diaphragmatic holding when the patient sneezes.

To the touch there is no hardness and no increased tonus save on the initial movements. There is no adiadokokinesis after limbering up, no ataxia, sensory changes nor difficulties

³⁹ Jones, A. B. Myotonia Congenita. M. Clin. North America 11: 341 (Sept.) 1927.
⁴⁰ Barker, L. F. Case of Myotonia Congenita. M. Clin. North America 14: 12 (July) 1930.

in skilled movements. The two sides are equal in strength. The skin and tendon reflexes show no variations. There are no pyramidal or extrapyramidal tract signs.

In the trunk the same myotonic stiffness shows itself in any large quick movements. The abdominal reflexes are present and equal. The cremasteric reflex is more of a dartos than a cremasteric reflex. There is no bladder or bowel disturbance. The genitals are not large, ejaculation is satisfactory. An electrocardiogram showed no changes in the heart muscle in timing or rhythm.

Examination of the lower extremities gives the same results as of the upper. The gastrocnemius is well developed and mechanical excitation shows definite myotonic reactions. There are no Babinski, Chaddock or sensory anomalies of any kind.

THE FAMILY TREE

Only one of the members of this group has come under personal observation thus far. The details are scanty. The patient recollects but little of his childhood. Both his father and his mother died when he was comparatively young, he is uncertain as to details.

His father's father married three or four times. He had children by all marriages. His mother's father married twice, maybe three times. Most of the descendants live in Holland.

The mother (Meurs) is the first of the family of whom to the present time any information is known. She had Thomsen's disease and died of heart disease at the age of 67. Her mother's name was de Boer and it is through this branch that we hope to trace the de Boer family of Wertheim Salomonson's case history. The father died at the age of 68. Of the mother's sisters and brothers the patient knows only remotely that there are four living in Holland, one brother with six children, all of whom are said to be free of the disorder.

Among the patient's own siblings—there are ten children, seven boys and three girls—the third and eighth (males) and ninth (female) are involved. The patient is the eighth child born. Of these may be stated in order as of September, 1929:

1 Jacob B, 54 years of age in 1927, suffers from some form of heart trouble. He has six children, one girl and five boys, all of whom are free. The girl has a heart murmur.

2 Peter B died of cirrhosis of the liver at 53. He had married but had no children. Physically he resembled the patient but was a little taller. He was always ailing. He had had catarrh, asthma and malaria. He had been a printer in the government service at Washington, D. C. He had a complication of complaints and became emaciated. Appendicitis was suspected but was not found at operation.

3 Cornelius B, aged 50, like the patient, always had "cramps" in his muscles. He is a machinist, married and has two children, neither of whom has any muscular trouble.

4 John B had a tumor of the kidney and died at the age of 53. He was darkly pigmented. He had one child, who was not involved.

5 Johanna B died at the age of 34, in 1914, of some kidney disorder.

6 Emma B was always sickly, thin and darkly pigmented. Her heart was enlarged. She was an invalid and died at the age of 49. She had two children, who are living and well.

7 Seymour B is living and well. He is married and has three children, one boy and two girls. None of them have Thomsen's disease.

8 Nicholas B, the patient, has one child, who is not involved.

9 Anna B had Thomsen's disease when young but has improved since growing up. She married, is well and has one daughter.

10 Harold B, aged 33, has had kidney stones. At the present time he is well. He has one daughter.

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THE SPECIFIC SERUM TREATMENT OF PNEUMOCOCCUS TYPE II PNEUMONIA

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The clinical entity "lobar pneumonia" is gradually coming to be recognized as comprising a group of specific infectious diseases.¹ This is due primarily to the interest aroused by the serologic classification of the pneumococci and the elaboration of specific therapeutic serums against two of the most frequent of these types, namely, types I and II.

The beneficial effects of specific antipneumococcic serum in the treatment of pneumonia due to the type I pneumococcus have been repeatedly demonstrated. In pneumonia due to this type, the death rate has been reduced by one half,² and rapid symptomatic improvement has been observed³ in cases treated early in the disease.

The type II pneumococcus occupies an important place in the etiology of lobar pneumonia. It causes between 13⁴ and 23⁵ per cent of all pneumococcic pneumonias with a mortality, in non-serum treated cases, of from 30^{2b} to 46⁵ per cent. It is a remarkably infrequent inhabitant of the normal respiratory tract.⁶ Gundel⁷ has recently emphasized its significance in relation to the pathogenesis of primary lobar pneumonia. At the Boston City Hospital the typing of large numbers of strains of pneumococci from various sources has confirmed this relation. During the past three years type II pneumococci were recovered in one or more specimens from 166 different patients. A study of all these cases revealed that lobar pneumonia was present in 152, or 91.6 per cent, of the patients. Bronchopneumonia was present in five patients, in two of these it occurred as a complication of measles, in two others it followed surgical operations, and in the fifth patient there was a lung abscess and the pneumonia was a terminal event. In only nine, or 5.4 per cent of the cases, was pneumonic consolidation definitely absent.

The reported results from specific serum therapy in pneumonias due to the type II pneumococcus have not

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This study received financial aid, in part, from the William W. Wellington Fund of the Harvard Medical School and, in part, from a grant given in memory of Francis W. Peabody by the Ella Sachs Plotz Foundation.

The authors are indebted to those whose assistance and cooperation made this study possible, namely, Drs. J. G. Kelley, J. M. Bethea, T. N. Hunnicut, J. W. Parsons, H. J. Stanford, C. W. Steele and C. E. Welch, and Mrs. Mary Truesdale, Miss Beatrice Tyndall and Miss Mary Carroll. The staffs of the Medical and the Pathologic services also cooperated.

1 Cole, R. I. Acute Pulmonary Infections, De Lamar Lecture, Baltimore, Williams & Wilkins Company, 1928.

2 (a) Cecil, R. L. and Plummer, Norman. Pneumococcus Type I Pneumonia, J. A. M. A. 95: 1547 (Nov. 22) 1930. (b) Park, W. H., Bullock, J. G. M., and Rosenbluth, M. B. The Treatment of Lobar Pneumonia with Refined Specific Antibacterial Serum, *ibid.* 91: 1503 (Nov. 17) 1928. (c) Finland, Maxwell. The Serum Treatment of Lobar Pneumonia, New England J. Med. 202: 1244 (June 26) 1930.

3 Sutliff, W. D., and Finland, Maxwell. Type I Lobar Pneumonia Treated with Concentrated Pneumococcic Antibody (Felton), J. A. M. A. 96: 1465 (May 2) 1931.

4 Blake, F. G. Observations on Pneumococcus Type III Pneumonia, Ann. Int. Med. 5: 673 (Dec.) 1931.

5 Cecil, R. L. and Plummer, Norman. Pneumococcus Type II Pneumonia, J. A. M. A. 98: 779 (March 5) 1932.

6 Stillman, E. G. Further Studies on the Epidemiology of Lobar Pneumonia, J. Exper. Med. 26: 513 (Oct.) 1917. Powell, J. P., Atwater, R. M., and Felton, L. D. The Epidemiology of Pneumonia, Am. J. Hyg. 6: 570 (July) 1926. Webster, L. T., and Hughes, T. P. Incidence and Spread of Pneumococci in the Nasal Passages and Throats of Healthy Persons, J. Exper. Med. 53: 535 (April) 1931.

7 Gundel, M. Die Bakteriologie, Epidemiologie, und spezifische Therapie der Pneumokokkeninfektionen des Menschen unter besonderer Berücksichtigung der Pneumonie. Ergebn. d. Hyg., Bakt., Immunitätsforsch. u. exper. Therap. 12: 132, 1931.

been as uniform or as convincing as those obtained in type I cases Cecil and Plummer,⁸ in reviewing five years' experience with Felton's serum at Bellevue Hospital, did not find a striking difference between the mortality in type II cases treated with specific antibodies and in alternate untreated control cases In the year 1930-1931, however, in a carefully alternated series of cases admitted to the hospital within seventy-two hours of the onset of type II pneumonia, these authors report three deaths among twenty-one recipients of Felton's serum, a mortality of 14 per cent, as compared with thirteen deaths among twenty controls, a mortality of 65 per cent Baldwin,⁹ at the New York Hospital, found the death rate in type II cases treated with Felton's serum about one-half that in alternate non-serum treated controls In a previous report from the Boston City Hospital^{2c} and one from the Harlem Hospital,^{2b} the mortality in type II cases was found to be favorably influenced by Felton's serum, but the differences between treated cases and controls were not striking

Both Cecil and Plummer and Baldwin failed to observe the rapid clinical improvement in type II cases treated with serum that is so constantly observed in specifically treated type I cases They did, however, gain the impression that the former were definitely less toxic after administration of the specific antibodies On the other hand, Armstrong and Johnson,⁹ at St Bartholomew's Hospital, on the basis of careful clinical observations in a small group of cases, failed to note any difference between the character of the response in the type I and the type II specifically treated cases

During the past three years at the Boston City Hospital a special study has been made of the efficacy of concentrated pneumococcic antibodies (Felton) in the treatment of pneumonias due to the type II pneumococcus Large doses of serums, especially selected for their high titer of type II antibodies, were administered within short intervals of time with the object of studying the effect of such treatment on the clinical course of the disease In view of the conflicting evidence and of the prevailing skepticism among many writers, a report of the results of this study may be of interest

SELECTION OF CASES

In the earlier part of this work serum was given in every alternate case of clinical lobar pneumonia from which type II pneumococcus was obtained In the latter part, serum was given only to patients admitted to the hospital within ninety-six hours of the onset of their disease In a number of early cases, however, there was failure to administer serum for various reasons They were mainly patients in whom the clinical or bacteriologic diagnosis was delayed and those under the care of physicians who preferred not to use antipneumococcic serums These cases and the ones admitted late in the disease have been studied in a similar manner as those in which serum was given The results in these cases are presented with the distinct understanding that they do not represent controls They are, however, of interest as representing contemporaneous cases in the same hospital, with the same general care and treatment, except for specific serum therapy

⁸ Plummer, H. I. The Specific Treatment of Pneumococcus Type I and II Pneumonia. *Am J M S* 151: 788 (June) 1931
⁹ Armstrong, K. K. and Johnson, K. S. Homologous Antipneumococcus Serum in the Treatment of Lobar Pneumonia. *Brit M J* 1: 931 (May) 1931

SERUM, SOURCE AND POTENCY

The serum used in this study was obtained from horses immunized against type I and II pneumococci and was concentrated according to the method of Felton¹⁰ It was concentrated and supplied, for the most part, by Dr Felton of the Department of Preventive Medicine and Hygiene of Harvard Medical School Occasional patients received, in whole or in part, bivalent (types I and II) serum prepared and concentrated in the Antitoxin and Vaccine Laboratory of the Massachusetts Department of Public Health and supplied through the courtesy of Dr Benjamin White During the last few months of this study the greater part of the serum was supplied through the Lederle Laboratories The serums were especially chosen because of their high content of type II antibodies Most of the lots ranged in potency from 2,000 to 5,000 Felton units,¹¹ the average for all the serums used being 3,000 units of type II antibodies per cubic centimeter All serum was given intravenously with the usual precautions and in a manner similar to that previously described in connection with type I cases³

DOSAGE

There is reason to believe that larger amounts of specific antibodies are necessary to obtain curative effects in type II cases than are required in pneumonias due to the type I pneumococcus, presumably because of the larger amount of specific soluble substance excreted by the former In type I cases it was early recognized and has been frequently reiterated by those having experience with antipneumococcic serum therapy that large doses of potent serums are essential for effective curative results This has been observed especially in severe cases presenting bacteremia In severe type II cases, Cole¹² was unable to maintain a balance of specific antibodies in the blood, using a serum of rather low potency The more recent work of Park and Cooper¹³ indicates that large doses of highly potent serums are necessary, in many cases, to establish such a balance, and that in some instances it is difficult, even then, to maintain Thus, Cecil and Plummer⁸ attempted to "administer from 100,000 to 200,000 units (from 40 to 100 cc) [of concentrated antibody] during each twenty-four hour period until the patient showed definite signs of recovery or until it was evident that the serum was exerting no influence whatever on the disease" Park, Bullowa and Rosenbluth^{2b} noted that it is important to start treatment early in persons with type II pneumonia and to give them more antibody than those with type I and that in late severe type II cases it may be impossible to give enough

In the cases here presented an attempt was made to introduce a large amount of antibody within a short space of time Most of the cases were given a first dose of 5, a second dose of 25 and then three or four doses of 40 or 50 cc at intervals of two hours Further doses were then given after a lapse of from eight to twelve or more hours if the clinical response was not entirely satisfactory Some variations were made when

¹⁰ Felton, L. D. Concentration of Pneumococcus Antibodies. *J Infect Dis* 43: 3-3 (Dec.) 1928
¹¹ Felton, L. D. The Concentration of Antipneumococcus Serum. *J A M A* 94: 1893 (June 14) 1930
¹² Cole, R. I. The Neutralization of Antipneumococcus Immune Bodies by Infected Exudates and Sera. *J Exper Med* 26: 453 (Oct) 1917
¹³ Park, W. H. and Cooper, Georgia. The Possibility of Rendering the Blood of Cases of Types I and II Lobar Pneumonia Antibacterial by Injections of Antibody Solution. *Tr Sect. Path. & Physiol. A M A* 1927: 117-127

reactions occurred or whenever the condition of the patient warranted. On the average, a total of 175 cc, containing approximately 540,000 units of type II antibodies, was given in six doses within twenty-four hours after treatment was instituted. Four patients received more than 300 cc, the largest dose being 475 cc, and five patients received less than 50 cc. In about one half of the cases the full dose of serum was given within twelve hours of the time the first dose was given. In fatal cases admitted within ninety-six hours of the onset of the disease, excluding one patient in whom serum was discontinued after a single dose of 5 cc, 239 cc (containing approximately 840,000 units of type II antibody) was given, on the average, in eight doses over a period of twenty-nine hours.

TYPING

In a majority of these cases the type was determined within five hours after a proper specimen was obtained. This was usually determined from the sputum by the Sabin¹⁴ method, but occasionally direct precipitation of the urine¹⁵ or of the sputum¹⁶ was used. Atypical strains were, in most instances, eliminated by direct agglutination with specific antisera prepared against these strains,¹⁷ especially the type V, corresponding to the one formerly recognized as type IIa. Routine mouse typing¹⁸ of the same sputum was always used as a check and, in most instances, additional specimens were likewise typed. Pneumococci obtained from the blood and from other sources were all typed.

In the present group of cases, the results of the typing were remarkably uniform. In only 5 of 135 cases (4 per cent) did the routine typing of the initial sputum fail to reveal the correct serologic group when subsequent specimens yielded type II pneumococci. From four of these initial sputums no organisms could be recovered from the mouse and from the fifth only influenza bacilli were recovered. There was only a single instance in which a Sabin test at the end of four hours was interpreted as showing agglutination in type I antiserum in a sputum which later proved to be a type II and another instance, to be mentioned later, in which pneumococci agglutinating in type IV antiserum (Cooper) were isolated from later sputums. With these exceptions, whenever pneumococci were obtained from more than one source in the same patient they all checked in regard to type.

EVALUATION OF THE RESULTS OF SERUM THERAPY

Effect on Mortality—In evaluating the therapeutic efficacy of any agent in a disease as variable in its course and outcome as lobar pneumonia, it is hazardous to draw final conclusions except after a careful study of groups of comparable treated and untreated cases. Due regard must be given to those factors which have an obvious and gross influence on the prognosis and course of this disease. The most important of these factors may be reviewed briefly.

The first is the etiologic agent and, particularly when the pneumococcus is the invader, its serologic type. This factor has been repeatedly emphasized by those who have been in a position to make bacteriologic and serologic studies in addition to clinical observations.¹ The scope of the present paper is clearly limited in this respect.

A second factor, the importance of which has long been recognized, is the age of the patient. A steady rise in mortality with increasing age has been clearly demonstrated at Bellevue Hospital by Cecil, Baldwin and Larsen¹⁹ in a large series of cases of pneumonia due to all types. This appears just as strikingly from the data of the Royal Infirmary in Glasgow²⁰ and from the Boston City Hospital.²¹

A third consideration is that of the presence or absence of bacteremia. Many observers have noted the striking difference in mortality between patients with and those without bacteremia. The former have been found, in non-serum treated cases, to have a death rate from three to as much as ten or more times that of cases due to the same type of pneumococcus but presenting negative blood cultures.²

Variations in mortality from year to year have been noted repeatedly by the various writers, even in pneumonias of the same type and in the same hospital. An outstanding recent acknowledgment of the fallacy of drawing conclusions from a comparison of cases chosen in different years appears in a recent report on the dextrose treatment of pneumonia.²²

The duration of the disease at the time a therapeutic agent is administered is probably of importance in evaluating its efficacy. This has been demonstrated by Goodner²³ in experiments on the dermal pneumonia in rabbits. In several of the reports on serum therapy already mentioned, and in Locke's²⁴ study of the serum treatment of type I cases, considerable significance is attached to the early administration of serum. Other observers, notably Cole²⁵ in type I cases and Baldwin,⁸ have not found this a factor of great importance.

Finally, the presence of complicating factors, notably alcoholism and other acute or chronic diseases, may have a decided influence on the outcome.

In some of the therapeutic experiments with serum in the treatment of pneumonia, an attempt was made to balance the errors arising from these and other factors by obtaining large numbers of cases and applying some method of alternation. In the Harlem Hospital series,²⁰ a statistical weighting of these factors was utilized in addition. In the present series, except in the earlier cases, alternation was not attempted, since the primary object of this study was to learn the effect of serum on the clinical course of the disease. Reference has been made to the manner in which the type II cases were selected for specific treatment. The mortality in these cases has been analyzed with respect to the more important factors discussed in this paper and a similar

14 Sabin, A. B. The Microscopic Agglutination Test in Pneumonia, *J. Infect. Dis.* 46: 469 (June) 1930.

15 Dochez, A. R., and Avery, O. T. The Elaboration of Specific Soluble Substance by Pneumococcus During Growth, *J. Exper. Med.* 26: 477 (Oct.) 1917.

16 Krumwiede, Charles, Jr., and Noble, W. C. A Rapid Method for the Production of Precipitin Antigen from Bacteria. An Attempt to Apply It to the Determination of the Type of Pneumococcus in Sputum, *J. Immunology* 3: 1 (Jan.) 1918.

17 Cooper, Georgia, Edwards, Marguerite, and Rosenstein, Carolyn. The Separation of Types Among the Pneumococci Hitherto Called Group IV and the Development of Therapeutic Antiserum for These Types, *J. Exper. Med.* 49: 461 (March) 1929.

18 Avery, O. T., Chickering, H. T., Cole, R. I., and Dochez, O. T. Acute Lobar Pneumonia, Monograph 7, Rockefeller Institute for Medical Research, Oct. 16, 1917.

19 Cecil, R. I., Baldwin, H. S., and Larsen, N. P. Clinical and Bacteriologic Study of Two Thousand Typed Cases of Lobar Pneumonia, *Arch. Int. Med.* 40: 253 (Sept.) 1927.

20 Cowan, J., Cruickshank, R., Cuthbertson, D. P., Fleming, J., and Harrington, A. W. Treatment of Lobar Pneumonia by Felton's Serum, *Lancet* 2: 1387 (Dec. 27) 1930.

21 Unpublished data.
22 MacLachlan, W. W. G., Kastlin, G. J., and Lynch, Ralph. Further Observations on the Use of Dextrose in Pneumonia, *Am. J. M. Sc.* 184: 511 (Oct.) 1932.

23 Goodner, Kenneth. Further Experiments with the Intradermal Pneumococcus Infection in Rabbits, *J. Exper. Med.* 48: 413 (Sept.) 1928.

24 Locke, E. A. The Treatment of Type I Pneumococcus Lobar Pneumonia with Specific Serum, *J. A. M. A.* 80: 1507 (May 26) 1923.

25 Cole, Rufus. Serum Treatment in Type I Lobar Pneumonia, *J. A. M. A.* 93: 741 (Sept. 7) 1929.

26 Bullock, J. G. M. Use of Antipneumococcal Refined Serum in Lobar Pneumonia, *J. A. M. A.* 90: 1349 (April 28) 1928.

analysis made of cases in which serum was not given. Although the latter are not controls in any strict sense, they are presented for comparison. All cases of lobar pneumonia admitted to the medical wards of the Boston City Hospital between November, 1929, and May, 1932, and from which type II pneumococcus was recovered, a

TABLE 1—Analysis of Mortality in Two Groups of Cases of Pneumococcus Type II Lobar Pneumonia (Boston City Hospital, 1929-1932)

	Treated with Felton's Serum			Not Treated with Felton's Serum		
	Number of Cases	Deaths	Per centage of Mortality	Number of Cases	Deaths	Per centage of Mortality
All cases	46	9	20	81	32	40
Different years						
1929-1930	13	2	15	29	10	34
1930-1931	13	2	15	25	9	36
1931-1932	20	5	25	27	13	48
Age groups						
10 years or less	7	0	0	9	0	0
20-39 years	22	0	0	35	9	26
40-49 years	7	3	43	20	13	65
50 years or more	10	6	60	17	10	59
Duration at entry						
Less than 96 hours	41	7	17	41	16	39
More than 96 hours	5	2	40	40	16	40
First blood culture						
Positive	11	6	55	29	20	69
Negative	34	3	9	50	9	18
Less than 96 hours at entry						
First blood culture						
Positive	10	5	50	14	10	71
Negative	30	2	7	18*	5	28

* Two patients subsequently had positive blood culture one died

total of 142 cases, were studied. The cases in which death occurred within twenty-four hours of the time of admission to the hospital (one serum treated and five non-serum treated) and those whose type was first obtained at autopsy (eight non-serum treated cases) are excluded from the mortality figures. One case in which serum treatment was discontinued after a single dose of 5 cc and in which death ensued nine days later is likewise excluded. Of the remaining 127 cases, Felton's serum was given in 46 and not given in 81. There were nine deaths among the former, a mortality of 20 per cent, and thirty-two deaths among the latter, a mortality of 40 per cent.

The influence of the various factors mentioned on the mortality in the treated and untreated cases are summarized in table 1. Briefly, the mortality in the treated cases has been consistently lower than in those not treated. There were no deaths among the treated cases under the age of 40 years and the results were most favorable in the cases treated before the end of the fourth day and in those having negative blood cultures. The complicating factors present in the fatal cases will be mentioned later. Among the cases ending in recovery, alcoholism was present in ten serum treated cases and in nine cases not treated. There was one cardiac patient and one patient with tuberculosis among the treated patients who recovered, and, among those not treated, one with cardiac disease, two with tuberculosis and one with diabetes survived. In general the incidence of complicating disease was comparable in these groups except for a higher percentage of alcoholic patients among the serum recipients.

Effect on Bacteremia.—The mortality in relation to the result of the first blood culture is given, for both the treated and the untreated cases, in the lower portion of table 1. The number of bacteremic cases treated is not very large. The course of the bacteremia in these

and in the untreated cases is, however, of interest. Among the untreated cases whose first blood cultures were negative, pneumococci were recovered from the blood on later occasions in five (one only at autopsy), and four of these ended fatally. No such phenomenon was observed among the treated cases. The course of the bacteremia in the fatal cases is discussed later. Among the recovered cases, the largest number of colonies grown from 1 cc of blood in an untreated case was 250 and in a treated case, 360 (before treatment). In the former patient, empyema and purulent conjunctivitis subsequently developed, the latter patient subsequently had a positive culture after only 5 cc of serum, but numerous other cultures were negative, although the fever persisted for ninety-six hours, during which time the patient was given repeated doses of serum.

SUMMARY OF FATAL CASES

In general, all the fatal treated cases, with one exception, were either treated late or had important factors contributing to the outcome. On the other hand, most of the untreated cases ending fatally had no such contributing factors and death in them was due to the pneumococcal infection. It is of interest to summarize some of the significant observations in the fatal cases (table 2).

All of the nine serum treated patients who died were over 40 years of age, and only three were under 50. Two of the patients died before the end of the fifth day, and the disease lasted as long as ten days in only one case. Death occurred in two instances within eight hours after serum treatment was begun, and in another within sixteen hours. A history of chronic illness suggesting pulmonary tuberculosis was present in three cases, and meningeal involvement (with no pneumococci found in cloudy fluid from the cisterna magna after death) was present in one of these. Auricular

TABLE 2—Analysis of Fatal Cases

	Treated	Untreated
Total deaths	9	32
Age		
Under 40 years	0	9
40 to 49 years	3	13
50 years or over	6	10
Alcoholism		
Acute	3	8
Chronic	4	4
With delirium tremens	1	3
Blood culture		
Positive on admission	6	20
Positive and increased	1	5
Negative and later positive	0	4*
Positive then negative †	4	3
Extent of consolidation		
1 lobe	5	23
1 entire lung	1	5
Bilateral	3	5
Extensions	0	2
Complications (of pneumonia)	1	5
Other important complicating diseases	0	5

* Including one from heart's blood

† Two treated and two untreated were negative at autopsy

fibrillation with marked pulse deficit was present in two cases before serum was given. There were seven patients with chronic alcoholism in this group, four of these were acutely intoxicated on admission and in one delirium tremens developed. In one of the acute alcoholic patients the pneumonia followed soon after severe injuries to the head, chest and internal organs, resulting from an automobile accident. Bilateral lung involvement was present in three cases and one entire

lung was involved in a fourth case before serum was given. The blood culture was positive before serum treatment in six instances, but specimens taken after serum treatment were negative in four of these cases (the heart's blood at autopsy in two of the latter). In one of the remaining cases the number of organisms recovered from the blood was reduced from 4,000 to

9 per cubic centimeter after serum was given, and in the other case the blood invasion increased in spite of intensive treatment (This was the injured alcoholic patient). One patient was treated with small doses because of the appearance of urticaria immediately following one of the injections. The blood culture, which was positive before the first dose, became negative and stayed so for three days after 75 cc of serum had been given. On the fourth day pneumococci were again

patients, one of whom had arthritis in addition, and in one case there was a subcutaneous abscess from which type II pneumococci were recovered. Extension of the pulmonary consolidation was definitely demonstrated in only two instances.

DURATION OF THE DISEASE

While a definite reduction in mortality is the ultimate aim of specific therapeutic serum, it is desirable to have some method of gauging efficacy in the individual patient. To the physician confronted with one case, some obvious effect on the course of the disease is greatly to be desired. To measure such an effect accurately in the disease with which we are dealing is not possible since no single measurable factor has been recognized which can be taken as an index to the course and severity of the infection in every case. It is feasible, however, to select those signs and symptoms commonly recognized as being indicative of the presence and activity of the acute disease and compare the duration of these signs and symptoms in the cases treated with serum and in those not treated with serum. A simple method of comparing cases in this respect has been previously described and applied to a series of type I cases,⁸ and the same general method was applied to the present cases.

Only cases that were admitted to the hospital within ninety-six hours of the onset of the disease and in which recovery had occurred were analyzed in this manner. The cases were studied first with respect to the duration of the disease to the time when the temperature first permanently dropped below 101 F and, secondly, with respect to the time when all symptoms of the acute disease abated and the temperature permanently remained below 100 F.

In chart 1 all the cases of type II pneumonia admitted to the hospital within ninety-six hours of onset and ending in recovery without febrile complications are charted according to the duration of the disease at the time of admission to the hospital and the duration from that time to the first permanent drop in temperature below 101 F. Each dot represents one serum treated case and each cross represents one untreated case. It will be seen at a glance that most of the dots appear below

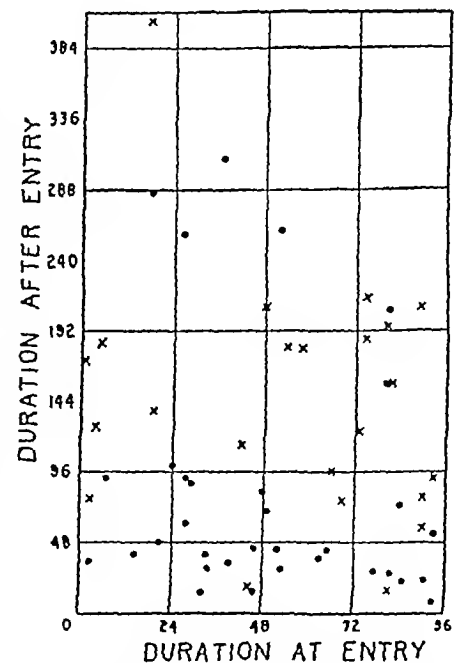


Chart 2—Duration of symptoms in the hospital. The duration at entry is charted against the duration, in hours, from admission to the disappearance of all symptoms of the acute disease and all fever of 100 or higher.

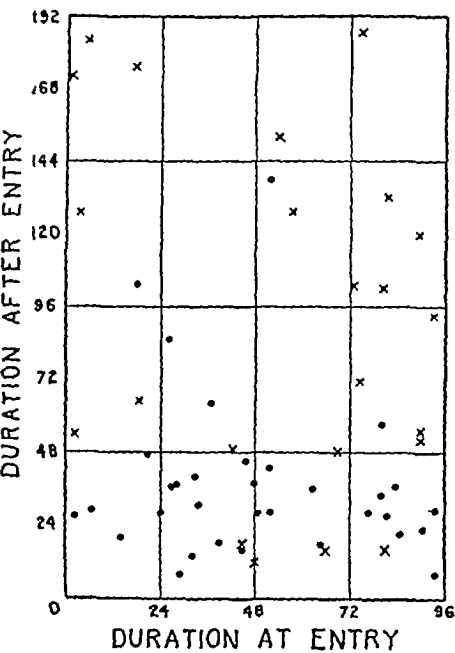


Chart 1—Duration of fever in the hospital. The duration at entry, in hours, is charted against the time from admission to the first permanent drop in temperature below 101 F. In this chart and in chart 2, each dot represents one serum treated case, and each cross one untreated case.

recovered from the blood, which was again effectively sterilized by the administration of 30 cc in three doses. In no case did bacteremia develop after serum treatment was begun, and extensions of the pneumonic process were not made out. Serum was first begun before the fourth day in only four cases, one of these patients being the man with the injuries and another the one who received the small doses. One case showed multiple abscesses in the lung at autopsy.

Among the thirty-two patients who died without receiving serum, nine were under 40 years of age and twenty-two (two thirds of the patients) were under 50. Four died before the end of the fifth day of the disease and ten died on the tenth day or later. Only six died on the second day after admission to the hospital, whereas twenty lived three days or more after entry. Chronic bronchitis was present in three cases, diabetes in one, and hypertension with auricular fibrillation in one. There were twelve patients with chronic alcoholism, eight of these were acutely intoxicated on admission and in three of the latter delirium tremens developed. Bilateral lung involvement was present in four and unilateral involvement of more than one lobe was present in five others. The first blood culture taken was positive in twenty of the cases and an increase in the extent of the bacterial invasion was demonstrated in five of these, whereas in three others death ensued in spite of the fact that no pneumococci could subsequently be isolated from the blood (even from the heart at autopsy in two of these cases). In four additional cases pneumococci were recovered from the blood only on second or later attempt (at autopsy in one instance). Pneumococcal meningitis was found at autopsy in one case, empyema in one, and hydro-nephrosis in one. Pericarditis was suspected in two

the horizontal line representing forty-eight hours, and most of the crosses appear rather widely scattered above this line. Specifically, twenty-eight (85 per cent) of the thirty-three recipients of serum who recovered had a permanent drop in temperature below 101 F within forty-eight hours after admission to the hospital,

whereas the same was true in only five (22 per cent) of the twenty-three untreated patients who recovered. The average delay from admission to the time serum was given was thirteen hours.

The duration, after admission to the hospital, of all the symptoms of the acute disease, including fever of 100 F or higher, is presented in the same manner in

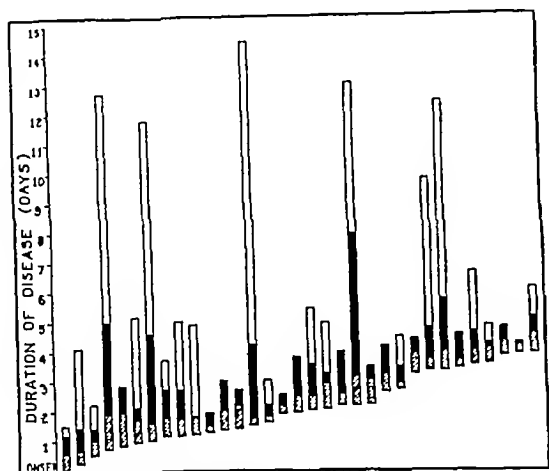


Chart 3—Duration of the disease in serum treated cases. In charts 3 and 4 each bar represents one patient. The distance of the bar from the base line represents the duration of the disease before entry; the hatched portion the time from admission to the time of serum administration; the solid portion the time to the first permanent drop in temperature below 101 F, and the light portion the time until all symptoms and fever, of 100 F or higher, disappeared. Only cases in which recovery occurred without febrile complications are shown.

chart 2. From this it will be seen that eighteen (55 per cent) of the recovered serum recipients who were admitted to the hospital within ninety-six hours of onset were asymptomatic and afebrile within forty-eight hours after entry and twenty-six (79 per cent) were free of symptoms within ninety-six hours, whereas only two (87 per cent) of the early untreated cases were symptom free within forty-eight hours and eight (35 per cent) within ninety-six hours. The contrast between the duration of fever and symptoms in the treated and untreated cases appears strikingly from a comparison of charts 3 and 4, in which the course of the disease in each of the cases is represented diagrammatically.

EXTENSIONS

The effect of serum therapy on the process in the lung is another important consideration. It is to be expected that a specific agent, while it may not influence the evolution of the process already developed, may act in some way to limit its spread. The clinical and roentgenographic observations were utilized to determine whether extension of the consolidation occurred. Extension was made out in only one of the treated cases in which recovery occurred.

This was a patient from whose blood type II pneumococci were recovered before serum was begun and after 5 cc had been given. He was found by physical and roentgen examination, to have an extension to the opposite hilar region on the day treatment was begun. Many subsequent blood cultures were negative. The sputum on the first two days showed type II pneumococci. Three days later type II pneumococci could no longer be isolated from his sputum, which continued to be tenacious and brown, but pneumococci agglutinating specifically in type IV antiserum (Cooper) were isolated on third and subsequent examinations. The

process did not extend far beyond the hilar region, but the course of the fever was somewhat protracted and the patient recovered. It was thought that the extension may have been due to the type IV organism.

Extensions were made out in six untreated patients who recovered. In three of these patients the opposite lung became involved, and in the others the extension was to previously unaffected lobes on the same side. Two of these patients died.

COMPLICATIONS

Febrile complications developed in two of the serum treated cases in which recovery took place. In one there was an acute otitis media and in the other a hemolytic streptococcus empyema, otitis media, and bacteremia and erysipelas of the chest wall. In the latter, recovery occurred after a protracted illness and surgical treatment. Sterile pleural effusions, not associated with fever, were present in two other cases.

Among the untreated patients who recovered, one had empyema and conjunctivitis, and type II pneumococci were obtained from both the pleura and the eye. Two patients had otitis media, a third had extensive furunculosis, and one had a sterile pleural effusion.

SERUM REACTIONS AND SERUM SICKNESS

The reactions following serum administration may be divided into three groups: (1) those occurring during or immediately after the injection, (2) thermal reactions and (3) serum sickness. Their occurrence in these cases may be briefly summarized.

Immediate Reactions—A slight or moderate increase in dyspnea was experienced by several patients, with wheezing and cyanosis in two instances. Flushing and elevation of the pulse rate for a few minutes frequently followed injections. Nausea was experienced by ten, with vomiting in four of these. Urticaria occurred during injections in six patients and mild chills were experienced by two persons immediately following one of the injections.

Thermal Reactions—A mild chill, from fifteen to ninety minutes after an injection, occurred in fourteen patients and was repeated one or two times in five of them. The greatest increase in temperature following a chill was 3 degrees Fahrenheit (to 105).

Serum Sickness

—This was present in fifteen of the thirty-seven surviving patients and was mild in all of them. The average dose was identical in treated cases in which serum sickness was present and in those in which it was not. The disease was manifested by urticaria in eleven cases, in five of these it was associated with arthralgia, in one with adenopathy and in two with both arthralgia and adenopathy. Arthralgia was present alone in three cases and along with adenopathy in one case. Fever was present in all the

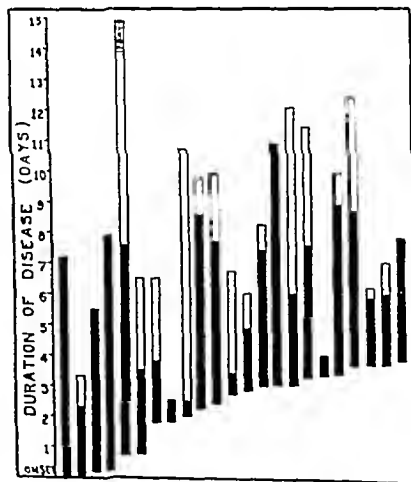


Chart 4—Duration of the disease in untreated cases.

cases except four of those presenting urticaria. Two patients each had two distinct bouts of serum sickness about three days apart.

COMMENT

The data presented here indicate that a definite beneficial effect may be obtained from specific serum treatment in cases of lobar pneumonia due to type II pneumococcus. This benefit has been demonstrated in diverse ways by comparing cases treated with serum with a similar group of simultaneous, though not alternated, cases not treated with serum. In the specifically treated cases the mortality is lower, fever and other symptoms of the acute disease subside rapidly, the pneumonic consolidation is limited and bacteremia, when present, usually disappears rapidly and permanently or, when absent, does not appear after serum administration.

The favorable results in these cases were, in our opinion, due to at least three important factors, namely, early treatment, the use of large doses of potent serums, and persistence in the treatment of severe cases. That patients treated early have a low mortality and are rapidly relieved of their symptoms appears clearly from the foregoing data. Whether similar results can be obtained in cases treated late cannot be deduced from the results in these cases. It may be possible to obtain good results when the lesion is not extensive and the extrapulmonary damage is not great. When the infection continues to progress, however, the amounts of antibody necessary to obtain these results may not be practical, at least with the materials at present available.

In mild cases not presenting bacteremia, small doses may be sufficient. Thus, it has been possible to establish and maintain a balance of antibodies in the blood of many such patients even with serum of low potency¹² and with small doses of Felton's serum²⁷. In severe cases, especially in those presenting bacteremia, the experience of many writers has been that large doses of potent serums are necessary and that relapse in the bacteremia may occur and the disease progress if treatment is discontinued too soon or if insufficient amounts have been given. This was clearly shown in one of the cases mentioned.

The question may be asked whether the beneficial effects here observed may not be the nonspecific response to the protein administered. This is not likely, as no response has been noted from large doses of serum of low antibody content. In type I cases, it has been possible to demonstrate this specificity by a direct comparison in different patients and in the same patient of the response to serum containing antibodies with that following the injection of similar serum containing no specific antibodies.²⁸

SUMMARY

In a group of forty-six cases of pneumonia due to the type II pneumococcus and treated with specific antibodies, the death rate was considerably lowered and a rapid amelioration of fever and symptoms was observed in comparison with contemporaneous non-serum treated and comparable cases. These beneficial effects were obtained by early treatment with large doses of potent specific antisera, and by persistence in treatment in severe cases.

27. Finland, Maxwell, and Sutliff, W. D. Specific Cutaneous Reactions and Circulating Antibodies in the Course of Lobar Pneumonia. II. Cases Treated with Antipneumococcal Sera. J. Exper. Med. 54: 653 (Nov.) 1931.

28. Sutliff, W. D., Finland, Maxwell, and Hunnicut, T. N. A Direct Comparison of Specific and Nonspecific Therapy. Type I Lobar Pneumonia, Arch. Int. Med., to be published.

MINIMUM COST DIETARIES FOR DIABETIC PATIENTS

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AND

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Late in 1931, like many other communities, the city of Syracuse was confronted by the problem of feeding an increased number of indigents at a time when the municipal income was decreasing. It became imperative that economies be effected. It was equally important not to undernourish the recipients or to supply an imbalanced diet. At a conference of the

TABLE 1—Syracuse City Diet A—A General Welfare Dietary for One Adult for One Week

Item	Amount
Bread	2 loaves
Evaporated milk, tall can	3 cans
Potatoes	3 lbs
Eggs	4 eggs
Tomatoes, no. 2 can	1 can
Butter	1 1/2 lb
Granulated sugar	1 1/2 lb
Brown sugar	1 lb
Molasses, no. 1 1/2 can, dark	1 can
Choice of salmon, sardines, T. S., mackerel, codfish or other dried fish	1 can or 1/2 lb
Choice of tea, coffee, cocoa	1/2 lb
Choice of whole grain cereal, rolled oats, corn meal, tapoca, rice, pearl barley, macaroni, spaghetti, flour	1 lb
Choice of prunes, apricots, apples	1 1/2 lb
Choice of dried peas and beans	1 1/2 lb
Choice of beets, cabbage, carrots, onions	2 lbs
Choice of peanut butter, lard, salt pork	1 1/2 lb
Choice of beef, lamb or other inexpensive meats	1 lb
Salt, soda, pepper, baking powder, dry mustard, vinegar, yeast (small amounts as needed)	
Cottonseed oil may be substituted for lard, salt pork, or peanut butter at equal cost	
Average yield daily	carbohydrate, 360; protein, 78; fat, 95; calories, 2,600

TABLE 2—Basic Diabetic Dietary with Six Modifications

	Costs per Week	Yields per Day			
		Carbohydrate	Protein	Fat	Calories
Basic Diabetic Dietary 1 City diet A less sugar, molasses, cocoa and 3/4 lb of cereal, plus 1 lb of meat	\$1.10	200	80	110	2,120
Diabetic Dietary 2 Diabetic dietary 1, less 1 lb of potatoes	\$1.10	185	80	110	2,050
Diabetic Dietary 3 Diabetic dietary 1 less 2 lbs of potatoes, plus 1/2 lb of butter	\$1.23	175	80	138	2,250
Diabetic Dietary 4 Diabetic dietary 1, less 1/2 loaf of bread and 1 lb of potatoes, plus 1/2 lb of butter	\$1.21	163	78	138	2,200
Diabetic Dietary 5 Diabetic dietary 1, less 1 loaf of bread, plus 1/2 lb of butter	\$1.22	148	75	138	2,150
Diabetic Dietary 6 Diabetic dietary 1, less 1 loaf of bread and 1 lb of potatoes, plus 1/2 lb of butter	\$1.21	138	73	138	2,100
Diabetic Dietary 7 Diabetic dietary 1 less 1 loaf of bread and 2 lbs of potatoes, plus 1/2 lb of butter	\$1.20	127	72	178	2,050

department of public welfare and the department of public health with the mayor's advisory committee on public health (a committee provided for by the charter of the city of Syracuse and appointed by the mayor from a panel selected by the Syracuse Academy of Medicine), it was decided to request the Public Health Committee of the Syracuse Academy

From the Third Medical Service, and the Department of Dietetics, Syracuse Memorial Hospital.

of Medicine to collaborate with a representative group of hospital dietitians and formulate a dietary on a minimum cost basis which would fulfil the requirements of balance, vitamins, reasonable palatability and total calories. The invitation was accepted and such a dietary was devised. A dietitian was attached to the welfare department to make the readjustments and other modifications that from time to time changing conditions might require. The city administration then discontinued the commonly used, wasteful and much abused grocery order system and established this limited choice dietary in all relief work. A method of purchase through the local grocers' association at a minimum

TABLE 3—Yield in Household Measure of Basic Diabetic Dietary 1

Bread	2 slices at each meal
Evaporated milk	Scant $\frac{1}{2}$ can daily
Potatoes	11 to 12 weekly
Butter	1 pat each meal or 2 full tablespoonfuls each day
Cereal (uncooked)	2 rounded tablespoonfuls daily
Vegetables	125 Gm or $\frac{3}{4}$ cup 8 servings weekly
Tomatoes	Scant $\frac{1}{2}$ cup 7 servings weekly
Apricots or apples	$\frac{1}{2}$ cup 5 servings weekly
Beans $\frac{1}{4}$ lb and salt pork $\frac{1}{4}$ lb	Baked divided into 3 servings weekly
Meat	4 times weekly $\frac{1}{2}$ lb at each serving
Fish	2 times weekly, $\frac{1}{4}$ lb at each serving
Eggs	3 once weekly and 1 during the week
Lard	$\frac{1}{4}$ lb to be used during the week

TABLE 4—Diabetic Dietary 1 Layout for the Week

One day's portion to be served 4 times weekly	
Evaporated milk	Scant $\frac{1}{2}$ can
Potatoes	2
Cereal raw	2 tablespoonfuls
Vegetable	$1\frac{1}{2}$ cups
Meat	$\frac{1}{2}$ lb
Bread	6 slices $\frac{1}{2}$ inch
Butter	2 rounded tablespoonfuls
Tomatoes	Scant $\frac{1}{2}$ cup
Fruit	$\frac{1}{2}$ cup
One day's portion to be served twice weekly	
Evaporated milk	Scant $\frac{1}{2}$ can
Potato	1
Cereal raw	2 tablespoonfuls
Fish	$\frac{1}{4}$ lb
Bread	6 slices $\frac{1}{2}$ inch
Butter	2 rounded tablespoonfuls
Tomatoes	Scant $\frac{1}{2}$ cup
Beans and	$\frac{1}{4}$ of $\frac{1}{2}$ lb
Pork	$\frac{1}{2}$ of $\frac{1}{4}$ lb
One day's portion once weekly	
Evaporated milk	Scant $\frac{1}{2}$ can
Potato	1
Cereal raw	2 tablespoonfuls
Eggs	3
Fruit	$\frac{1}{2}$ cup
Bread	6 slices $\frac{1}{2}$ inch
Butter	2 rounded tablespoonfuls
Tomatoes	Scant $\frac{1}{2}$ cup
Beans and	$\frac{1}{4}$ of $\frac{1}{2}$ lb
Pork	$\frac{1}{2}$ of $\frac{1}{4}$ lb
One-fourth pound of lard used throughout the week for cooking	
One egg used during the week in cooking	
Tea and coffee daily	

scale of profit was adopted in preference to the warehouse method used in some other communities.

This dietary has received considerable publicity as the 'Syracuse Diet' and has been accepted by other communities and approved by state agencies. It has worked successfully for our city throughout the year. The saving to the city has been estimated as approximately \$250,000. Careful check by the department of health has revealed no nutritional defects.

The dietary is varied for seasonal changes in order to take advantage of market conditions and for racial and religious habits. Children get fresh milk daily and cod liver oil and oranges during the winter, the sick get the special foods needed. A representative outline of foods furnished one adult weekly, known as City Diet A, is given in table 1.

The cost of diet A during November, 1932, was \$1.18 per person, weekly.

There are, of course, a number of diabetic patients on the city welfare list. Medical supervision and insulin are provided them through various agencies. As a

TABLE 5—Diabetic Dietary 1 Divided into Meals for One Week

For Sunday, Tuesday, Thursday and Saturday Only				
Morning	Portion	Carbohydrate	Protein	Fat
Evaporated milk (day)	Scant $\frac{1}{2}$ can	18	12.0	14.5
Cereal raw	2 tablespoonfuls	16	2.0	
Butter	1 pat			8.5
Bread	2 slices $\frac{1}{2}$ inch	32	5.8	
Coffee		66	10.8	23.0
Noon				
Bread	2 slices $\frac{1}{2}$ inch	32	5.8	
Potato	1	20	3.0	
Meat	$\frac{1}{2}$ lb		31.0	55.0
Vegetable	$\frac{3}{4}$ cup	10	2.5	
Tomatoes	Scant $\frac{1}{2}$ cup	4	2.0	
Butter	1 pat			8.5
Tea		60	44.3	63.5
Night				
Bread	2 slices $\frac{1}{2}$ inch	32	5.8	
Potato	$\frac{1}{4}$	20	3.0	
Vegetable	$\frac{3}{4}$ cup	10	2.5	
Fruit	$\frac{1}{2}$ cup	8		
Butter	1 pat			8.5
Lard	1 tablespoonful			14.0
Tea		70	11.3	22.5
		202	75.4	109.0
For Monday and Friday Only				
Morning				
Evaporated milk (day)	Scant $\frac{1}{2}$ can	18	12.0	14.5
Cereal, raw	2 tablespoonfuls	16	2.0	
Butter	1 pat			8.5
Bread	2 slices $\frac{1}{2}$ inch	32	5.8	
Coffee		66	19.8	23.0
Noon				
Bread	2 slices $\frac{1}{2}$ inch	32	5.8	
Potato	1	20	3.0	
Fish	$\frac{1}{4}$ lb		25.0	13.0
Butter	1 pat			8.5
Tomatoes	Scant $\frac{1}{2}$ cup	4	2.0	
Lard	1 tablespoonful			14.0
Tea		56	36.8	35.5
Night				
Bread	2 slices $\frac{1}{2}$ inch	32	5.8	
Butter	1 pat			8.5
Beans $\frac{1}{2}$ of $\frac{1}{4}$ lb and		45	18.0	1.0
Pork $\frac{1}{2}$ of $\frac{1}{4}$ lb			1.0	31.0
Egg one day	1		3.0 (av)	3.0 (av)
Tea		77	27.8	43.5
		199	83.4	102.0
For Wednesday Only				
Morning				
Evaporated milk (day)	Scant $\frac{1}{2}$ can	18	12.0	14.5
Bread	2 slices $\frac{1}{2}$ inch	32	5.8	
Cereal raw	2 tablespoonfuls	16	2.0	
Butter	1 pat			8.5
Egg	1		6.0	6.0
Coffee		66	25.8	20.0
Noon				
Bread	2 slices $\frac{1}{2}$ inch	32	5.8	
Potato	1	20	3.0	
Butter	1 pat			8.5
Eggs	2		12.0	12.0
Lard	2 tablespoonfuls			23.0
Fruit	$1\frac{1}{2}$ oz	8		
Tea		60	20.8	43.5
Night				
Bread	2 slices $\frac{1}{2}$ inch	32	5.8	
Butter	1 pat			8.5
Tomatoes	Scant $\frac{1}{2}$ cup	4	2.0	
Beans $\frac{1}{2}$ of $\frac{1}{4}$ lb and		45	18.0	1.0
Pork $\frac{1}{2}$ of $\frac{1}{4}$ lb			1.0	31.0
Tea		81	26.8	40.5
		207	73.4	118.0

further economy, diabetic dietaries have been built out of city diet A and are tabulated as diabetic dietaries 1, 2, 3, 4, 5, 6 and 7 (table 2).

Diabetic dietary 1 is our basic diabetic dietary and the other six are derived from it by simple subtractions and additions. This makes the passing from one dietary to another a simple procedure.

Yields are given in household measure of basic diabetic dietary 1 in table 3, and the manner in which this food may be spread over the week in table 4

The well trained patient needs no further outline

The beginner may require a meal by meal plan, so we give a possible one for diabetic dietary 1 in table 5

It will be found that the necessary subtractions and additions to formulate the other six diabetic dietaries can be readily applied to any of these tabulations and outlines without unbalancing them. The practical advantage of this interchangeability is evident

One-half pint of cottonseed salad oil per week may be added to any diet, increasing the average weekly costs by \$0.12 and increasing the daily calories by 275. When high fat and extra calories are desired, both oil and butter may be added

The subtraction of the added half pound of butter from dietary 3, 4, 5, 6 or 7 will lower the average weekly cost to \$1.10, reduce the calories by 270 and be useful when low fat, low calory dietaries are indicated for the obese or the aged

With the outpatient group under dietetic control, indiscretions are lessened and administration costs lowered

Medical Arts Building

Clinical Notes, Suggestions and New Instruments

THYROTOXICOSIS CONTINUING AFTER EXTREME OPERATIVE, IODINE AND ROENTGEN THERAPY

D. B. PHEMISTER, M.D., AND P. A. DELANEY, M.D., CHICAGO

This case of thyrotoxicosis is reported because of the extreme extent to which the thyroid gland was removed at operation and its remaining portions subsequently destroyed by pole ligations and roentgen treatment. Despite these measures and extensive iodine administration, severe thyrotoxicosis continued, and a complicating infection led to a fatal termination. At autopsy the neck was searched and no thyroid tissue was found

History—A woman, aged 41, seen by Dr. D. P. Abbott, Feb. 27, 1925, because of symptoms of nervousness, weakness, palpitation of the heart, and loss of weight, had been struck, six months previously, in the frontal region by a bolt, producing a depressed fracture of the walls of the frontal sinuses. One month later, an operation was done for the purpose of elevating the depressed bone. Soon after that she began to tire easily and to lose weight, having lost 15 pounds (6.8 Kg.) since the accident. She then developed nervousness and palpitation of the heart, which had slowly increased in severity

Examination—The patient was nervous and emotional, she was slender, weighing 106 pounds (48 Kg.). There was a fine tremor of the hands, and the pulse ranged from 90 to 100. The blood pressure was 134 systolic and 78 diastolic. There was no exophthalmos or other ocular abnormality. The thyroid gland was not palpably enlarged. There were no abnormal masses in the base of the tongue or in the neck. The heart showed no enlargement or abnormal sounds. The basal metabolism was +12. A diagnosis of thyrotoxicosis was made.

She was given compound solution of iodine 10 minims (0.6 cc.) three times a day for three weeks, and for the following four months she rested at home, being confined to bed much of the time. June 26, the symptoms were worse, with swelling of the legs. The basal metabolic rate was +37. She then took 10 minims of compound solution of iodine for one week and rested at home for one month. July 22, the condition was worse. The basal metabolic rate was +89, the weight, 95 pounds (43 Kg.). There was no exophthalmos, the thyroid was pal-

pable but not enlarged. The patient was treated by rest in bed at the Presbyterian Hospital and received 10 minims of compound solution of iodine three times a day until August 18, during which time her general condition slightly improved. The basal rate, August 5, was +61, August 20, +60, the weight, August 22, 92 pounds (41.7 Kg.). Ligation of both superior poles was done under local anesthesia. The patient was unimproved seven weeks later, and the basal rate was +53. At that time she was given compound solution of iodine, 10 minims three times a day, which was continued for seven weeks, during which time she was up and around. December 4, she was confined to bed because of edema of the legs, dyspnea, insomnia and marked nervousness. Digitalis and a mixture of amidopyrine and a barbituric derivative were given, and, December 14, the basal rate was +41. The legs remained swollen. The liver was enlarged and the left border of the heart was 1 cm. lateral to the nipple line. The pulse was from 85 to 120, blood pressure, 154 systolic and 78 diastolic, weight 105 pounds (47.6 Kg.). Jan. 13, 1926, the basal rate was +44.

Operation—January 25, the patient was given ethylene anesthesia, and the thyroid gland, consisting of two lateral lobes and an isthmus, was found to be definitely smaller than normal and moderately firm. A subtotal thyroidectomy was performed, leaving portions approximating 2 by 1 by 1 cc. at the lower poles.

Pathologic Examination—The excised specimen weighed 12 Gm. It was finely lobulated, firm and shaded from light to dark red. Microscopically there was extensive lymphatic tissue replacement, arteriosclerosis, and fibrosis of the thyroid. With Maximow's stain the thyroid alveoli were of two types. Some were of moderate size, lined by low cuboidal cells, with relatively clear cytoplasm and filled with an average amount of vesicular colloid. Others were small, resembling those of compound serous alveolar glands and containing little or no colloid. The lining cells were cuboidal to columnar and contained abundant deeply staining mitochondria. The lymphatic tissue was abundant and contained many germinal follicles. The arteries were markedly sclerotic and extensively calcified. There was both new and old fibrous tissue scattered throughout the gland.

Postoperative Course—Because of previous failures of response, no iodine was given. There was a moderate reaction, which subsided in three or four days. The patient improved slightly during the next month. Then the edema and dyspnea returned and she had extreme nervousness, diarrhea and sweats. April 20, the basal rate was +83. She was kept on compound solution of iodine, 10 minims three times a day for two weeks without benefit. An aberrant thyroid was thought of, but reexamination of the neck and base of the tongue revealed no signs of it. A roentgenogram of the chest was negative for mediastinal shadows of a thymus or intrathoracic goiter.

April 29, roentgen therapy of the thymus region was instituted. From April 29 to September 1, the patient received twenty-one roentgen treatments to the thyroid region of the neck, in a dosage of 130 peak kilovolts, 5 milliamperes, 10 inch target distance, 4 mm. aluminum filter, exposure six minutes. However, she continued to have marked symptoms of thyrotoxicosis, gradually grew worse and was confined to bed most of the autumn with cardiac decompensation.

Jan. 16, 1927, she was admitted to the hospital with swollen legs, dyspnea, and extreme nervousness. Her weight was 104 pounds (47.2 Kg.), the pulse was irregular and rapid, the basal metabolism was +28. She remained in bed and received digitalis and compound solution of iodine most of the time during the next three and a half months, with but little improvement.

April 20, the basal rate was +41. May 6, there was still marked tremor, nervousness and tachycardia but no exophthalmos.

Third Operation—An operation was done under ethylene anesthesia. As the amount of thyroid tissue left at the previous operation might have been too great, the field was again explored. However, no definite thyroid tissue could be found. The inferior thyroid arteries were identified and followed toward the trachea. Each one led to a small pea sized nodule in the region of the inferior poles, which did not look like thyroid tissue. Both inferior thyroid arteries were ligated in the hope that any thyroid tissue left in the nodules might be influenced.

Postoperative Course—There was a severe postoperative reaction for three days, after which she gradually improved, and six weeks later she was in the best condition of any time since operative treatment was started. She had gained in weight to 111 pounds (50 Kg.), she was able to walk fairly well, and the pulse ranged from 72 to 90 during a two day period of hospital observation. The basal rate had fallen to +5. After three months the thyrotoxic symptoms again grew worse, but she was able to do light work. November 5, she weighed 118 pounds (53.5 Kg.), and the basal rate was +54.

November 15, she was readmitted to the hospital with an infection of the upper respiratory tract. Cardiac decompensation with mental confusion developed. The heart improved slowly on digitalis therapy, but she remained weak and was confined to bed.

Feb 9, 1928, she was admitted to the University of Chicago Clinics, at which time she was nervous, weak and dyspneic. The heart was moderately enlarged, rapid and irregular, and there was edema of the legs. The basal rate was +77 and the blood pressure 150 systolic and 90 diastolic. Compound solution of iodine, 10 minims three times a day, was given for ten days without the slightest effect. No new physical signs had developed and various roentgen and laboratory tests were of no special interest. Between March 4 and June 1, thirteen roentgen treatments were given to the neck and upper thoracic regions with no change in her condition.

June 16, the basal rate was +74. She was then given compound solution of iodine, 10 minims three times a day, continuously for two months but remained weak, nervous and dyspneic with swollen feet. July 16, the basal rate was +65 and August 13, it was +88. Compound solution of iodine was then stopped and her condition remained much the same for two and a half months, at which time she grew worse and, November 5, was again admitted to the University of Chicago Clinics.

She had diarrhea, along with previous symptoms, and the basal rate was +85, blood pressure 180/90. Extract of suprarenal cortex was given during her five weeks' stay in bed in the hospital along with three roentgen treatments to the neck. At the end of that time her condition was but slightly improved, and the basal rate, December 9, was +68. Jan 10, 1929, the basal rate was +69 and her condition remained unchanged.

January 15, while at home, she developed a febrile condition, which was accompanied by periods of lumbar pains and hematuria. Her condition steadily grew worse with marked dyspnea and nervousness, and she died, February 27.

Autopsy—An autopsy was performed twenty-four hours later, when we learned of her death, after the body had been embalmed. The observations of importance were as follows: moderate hypertrophy of the left ventricle of the heart, vegetative mitral endocarditis and large anemic infarcts in the right kidney and the spleen, hemorrhagic glomerulonephritis. There was edema of the lower extremities and back. The structures of the neck below the hyoid bone and of the thoracic cavity were removed en masse. Of greatest interest was the fact that no tissue resembling thyroid gland could be found on careful search of the neck and mediastinum. Numerous lymph nodes were found along the course of the great vessels of the neck and the peritracheal and peribronchial regions, which were of normal appearance except for enlargement and anthracosis of the right peribronchial ones.

The remnants of the lower poles found at the last operation could not be definitely identified but small nodules of tissue from their vicinities were taken for microscopic examination. Every nodule in the neck which looked as if it might possibly be adenomatous tissue was excised and fixed for microscopic examination totaling fifteen pieces. Microscopically they all proved to be lymph nodes, of which some were normal, some hyperplastic and others fibrotic (possibly as a result of the x-rays). The tissues removed from the lower polar regions consisted of fibrous tissue, fat and nerve trunk. No definite thyroid or parathyroid tissue could be found.

The thymus weighed 6 Gm. Microscopically it contained well preserved Hassall's corpuscles and a small amount of lymphatic tissue. The suprarenals were slightly smaller than normal and showed normal relations of cortex and medulla.

Microscopically there were no changes. The ovaries, tubes and uterus were normal in appearance, and microscopic examination of the ovaries showed no changes. The brain and spinal cord were not examined.

Removal of the tongue and nasopharynx was not permitted.

COMMENT

The fact that at autopsy no thyroid tissue was found in the neck does not exclude its existence, since serial sections were not made of the entire structures and very small amounts would easily escape detection. Since the tongue and nasopharynx were not examined, the question arises as to the presence of aberrant thyrotoxic gland tissue in those locations as being responsible for the continued symptoms. For the following reasons this appears to be extremely improbable. Aberrant thyroid tissue was suspected during life, and the base of the tongue, nasopharynx and upper part of the neck were repeatedly examined for it with negative results. A search of the literature revealed only two very questionable cases of thyrotoxicosis due to disease in an aberrant thyroid, reported by Galisch¹ in 1894 and Strauss² in 1906. The finding of a normally shaped and situated thyroid gland is against the presence of an associated aberrant thyroid at the base of the tongue, since the thyroid develops entirely from the median anlage at the base of the tongue and, according to Schilder³ and Erdheim,⁴ absence, malformation or a pyramidal lobe of the cervical structure is the common finding when lingual thyroid is present. The tendency in aberrant thyroid is for the development of hypothyroidism instead of hyperthyroidism. It was reported in eighteen cases of lingual goiter collected by M. L. Montgomery of this clinic. He also found six cases of thyroid insufficiency which first appeared after removal of a lingual thyroid.

The facts that the gland removed at the second operation showed histologic features compatible with thyrotoxicosis and that, after the ligation at the third operation of the inferior thyroid arteries to the very small masses in the inferior polar regions, the basal metabolic rate fell to +5 and the patient had a temporary period of definite improvement speak for the thyroid in the neck as the seat of the disease.

Pemberton⁵ has pointed out that there is no very exact relationship existing between the amount of gland removed and the completeness of disappearance of symptoms and has emphasized the point that as complete a disappearance of symptoms and return of remaining portions to a normal microscopic appearance will usually be obtained by removal of from 65 to 85 per cent of the structure as by removal of much larger proportions, as advocated by Richter. It should be remembered that in the earlier days of operative treatment prompt recovery often followed removal of only one half of the gland. However, experience has shown that continuation or return of symptoms is often due to too much gland left behind and removal of an adequate amount of the remaining portion results in a cure as shown by the reports of Richter,⁶ Clute,⁷ and Collier and Potter.⁸ But this is not always the case, as rarely have patients remained thyrotoxic after nearly all the remaining portion has been removed.

We have been unable to find reports in the literature of cases similar to this one, but we know from personal communication that Pemberton has had a similar experience.

The question arises as to whether or not in such cases the thyroid gland is the seat of the disease, as is now generally assumed for thyrotoxicosis. That it is the seat is readily explainable on the assumption that a very small amount of overlooked diseased thyroid may have the necessary effect when other structures, such as the sympathetic nervous system, which

¹ Galisch. Struma Accessoria basis linguae. Deutsche Ztschr. f. Chir. 39: 560, 1894.

² Strauss. M. Ueber Kropfgeschwulstbildung in der Zunge. Med. Klinik 2: 1259, 1906.

³ Schilder. P. Ueber Missbildungen der Schilddrüse. Virchows Arch. f. path. Anat. 203: 246, 1911.

⁴ Erdheim. J. Schilddrüsen aplasie. Geschwulste des Duodeni. Thyroglossus. Beitr. z. path. Anat. u. z. allg. Path. (Ziegler's) 135: 1904.

⁵ Pemberton. J. de J. Recurring Exophthalmic Goiter. Its Relation to the Amount of Tissue Preserved in Operation on the Thyroid Gland. J. A. M. A. 94: 1483 (May 10) 1930.

⁶ Richter. H. M. Thyroidectomy. Surg. Gynec. & Obst. 49: 67 (July) 1929.

⁷ Clute. H. M. Hyperthyroidism Persisting After Thyroidectomy. S. Clin. North America 6: 691 (June) 1926.

⁸ Collier. F. A. and Potter. E. B. The End Results of Thyroidectomy. Ann. Surg. 94: 568 (Oct.) 1931.

are secondarily influenced, are unusually susceptible to the action of its secretion, i. e., hypersensitization of body tissues to a normal or altered thyroid hormone

SUMMARY

A case of thyrotoxicosis was uninfluenced by prolonged and repeated administrations of compound solution of iodine, ligation of both superior poles, extensive subtotal thyroidectomy and extensive roentgen treatment. Improvement then followed bilateral ligation of the inferior thyroid arteries supplying pea sized masses at the lower poles, but the disease soon recurred in severe form and compound solution of iodine and roentgen therapy were again used without benefit. Vegetative endocarditis finally supervened, with a fatal termination.

An autopsy was performed and no thyroid tissue was found. The tongue and nasopharynx were not examined at autopsy, but it is extremely improbable that there was any thyroid tissue in those regions.

950 East Fifty-Ninth Street

SAWDUST DERMATITIS

OSCAR L. LEVIN, M.D., NEW YORK

Attending Dermatologist, Beth Israel and Sea View Hospitals. Associate Dermatologist, Mount Sinai and Montefiore Hospitals. Consulting Dermatologist, Rockaway Beach Hospital.

During the past three decades, the specialty of dermatology has grown increasingly comprehensive. In fact, the subject of dermatitis has grown to considerable economic importance since the introduction of compensation laws. In a dermatologic case recently referred to me, I found that a dermatitis of the hands and forearms resulted from the handling of sawdust. The occurrence of dermatitis venenata from contact with plants and wood has been known for many years. It is less well known, however, that so apparently innocuous a substance as sawdust contains chemicals that may arouse a disabling occupational disease. The literature contains rather meager references to this subject. It is my purpose in this paper to record an illustrative case.

REPORT OF CASE

History—A S., a married woman, aged 50, a sweeper in a department store, referred to me, Aug. 13, 1931, complained of an intensely itchy eruption of both hands of seven weeks' duration. It had first appeared as small "itchy blisters" on all the fingers and both hands. New blisters continued to appear as old ones dried. Shortly after the onset, the skin became dry and cracked. The patient experienced difficulty in bending her fingers, and attempts to close her hands caused pain. She continued working until three weeks prior to her first appearance in my office.

She said that the condition was produced by the sawdust that she handled in her work. Her work consisted of sweeping in a department store after it had been closed for the day. She moistened the sawdust with water and threw handfuls of it on the floor. This was then swept away with a broom. She had been engaged in this occupation for seven weeks. No history of a previous skin condition could be elicited.

Treatment had consisted of applications of bland oils, but there had been no relief and she was finally compelled to stop work.

Dermatologic Examination—Examination of the skin revealed an eruption of the fingers and hands. All the fingers and both hands were swollen and appeared enlarged. The right hand was more affected than the left. The skin of the affected areas was red, swollen, edematous, vesicular and torn. Small and large vesicles were present. Many were exuding a thin serum. The palms showed large denuded areas that were bright red, moist and surrounded by undermined, frayed, epidermal borders. Scattered over the skin were discrete and aggregated vesicles, some of which had dried and were covered with crusts. The front of both forearms showed dark red, papular, thickened patches with some scaling. Over the front of the left elbow was an ill defined, large, superficial, moist, excoriated patch.

Careful inquiry was made as to the possible etiologic factors. The diagnosis of dermatitis venenata was made on clinical

grounds and that of sawdust dermatitis was confirmed by positive patch tests. In the performance of the patch test, sawdust moistened with water was applied to the skin of the back. Twenty-four hours later the tested area was bright red, elevated and covered with numerous vesicles. The dermatitis which developed extended rapidly to cover an area that was about three times as large as the originally tested area, and the inflammation persisted for about a fortnight.

The skin was treated and cured with wet dressings, pastes and roentgen therapy. Nine days after returning to her work a fresh, similar eruption appeared on the fingers and hands. The patient stated that immediately after handling the moistened sawdust again she began to suffer from itching, which was soon followed by an eruption. The recurrence was characterized by an acute efflorescence of bright red, vesicular, edematous, oozing, patchy lesions.

The patch test has proved to be of particular value in the detection of an obscure etiologic excitant in cases of eczema (dermatitis). This depends on the fact that the surface epithelium will often react on contact with chemicals when the deeper tissues may not.

The technic is extremely simple. It consists of the application of the suspected substances to the uninjured surfaces of the skin. This is done by soaking small pieces of gauze in the material and applying them to the normal skin, preferably on the back. This saturated patch is covered with a larger dry patch and secured by means of adhesive tape. Several tests may be made at one application and definitely marked for future observation. These patches are permitted to remain for twenty-four hours, at which time they should be removed and the reactions noted.

There is no universal method that is efficacious in the testing of all hypersensitive skin conditions. The type of eruption with which I am concerned in this paper is dermatitis venenata and that of sawdust dermatitis, as confirmed by positive contact or patch tests. In this condition the patch test has its principal use, for it alone can aid in the quest of the etiologic factor and in the study of the dermatitis. And, once again, the patch test has proved efficacious in definitely establishing a diagnosis of dermatitis venenata and its relation to occupational diseases as ruled under the workmen's compensation law.

Dermatitis venenata is described under the aforementioned law as "any process involving the use of or direct contact with acid, alkalis, acids or oils capable of causing dermatitis (venenata)".¹ Since in this case a definite diagnosis has established the existence of a dermatitis venenata and also that of a sawdust dermatitis, the sawdust being a screened product of sawmills in which various varieties of woods are employed, it is obvious that the isolated alkaloid from sawdust is the offending factor. Therefore, sawdust dermatitis constitutes an occupational disease which should be compensated by law.

COMMENT

Investigation has not disclosed the record of any chemicals being used in the manufacture of sawdust. Sawdust is simply the screened product of the sawmills. The chips and sawdust are put between two grinding stones and pulverized. This is screened and packed in sacks. Steam or water is introduced in limited quantities to prevent excessive heating from friction.

Literature on sawdust dermatitis has disclosed that satinwood affects the skin without affecting the conjunctiva, mouth or penis. The rash disappears in a few days and is said to be caused by the oil in the wood. However, Auld² examined and extracted 1 per cent of oil from the sawdust and found that this oil did not give rise to irritation. He isolated an alkaloid, which he called chloro-ylonnine, and thus, it is believed, is the cause of the dermatitis. This alkaloid and its salts, the hydrochlorides, are activating agents to two out of every three persons. This chemical is a powerful irritant, and, according to Cash,³ the poison requires twenty-four days of latency to develop its effects.

1 Manual of Sept. 1, 1931 section 3, subdivision 2, paragraph 27, page 55.

2 Auld. Report of the Departmental Committee on Compensation for Industrial Diseases, 1907, Lancet 1 1703 1909.

3 Cash, J. T. Dermatitis in Shipbuilders Yard, Brit. M. J. 2 794 1911.

METHOD FOR THREADING NEEDLES—POTH

VOLUME 100
NUMBER 8

Spillman⁴ has recorded a series of eruptions from handling freshly cut oak but is uncertain whether the juice of the oak was the responsible agent or some vegetable growth on the bark.

The symptoms of satinwood dermatitis are intense irritation, followed by heat, redness, swelling and pain. At a later stage, the skin becomes moist and peels off. Ebony and teak also produce inflammatory skin disorders, accompanied by constitutional symptoms.

Japanese hardwood, or "togayasa," causes a dermatitis and a dark brown pigmentation, accompanied by a toxic action on the digestive and renal organs. Rosewood, mahogany and birch wood are frequently offending agents in cases of skin irritation among wood workers. Erythema multiforme and pustular acne in workers handling woods found in the central states are probably caused by mechanical action only, the irritating and abrasive action of the woods giving rise to minor injuries which present numerous portals of infection.

The erythema and thickening of the skin of the hands in laborers who saw chestnut wood has been described by Horland⁵ as the "crocodile hand."

SUMMARY

This rare but prevalent case of sawdust dermatitis was diagnosed by the clinical picture presented and confirmed by means of the positive patch test. The patient made an uneventful recovery.

Since it is known that sawdust contains an alkaloid, which chemical is a powerful irritant, sawdust dermatitis should be classified among the occupational diseases ruled under enactments of the workmen's compensation law.

2 East Fifty-Fourth Street

A SIMPLE METHOD FOR THE RAPID THREADING OF NEEDLES

EDGAR J. POTTS, PH.D., M.D. SAN FRANCISCO

The use of fine milliner's needles and silk, as advocated by Kocher, Halsted and Cushing, entails the threading of numerous needles. This task is tedious, time consuming and often difficult, especially when medium, heavy and braided silks are used. The method described here is presented because of its simplicity.

A piece of wire is selected according to the size of needle and thread to be used. The accompanying table gives the best corresponding sizes of wire, needles, and suturing materials.

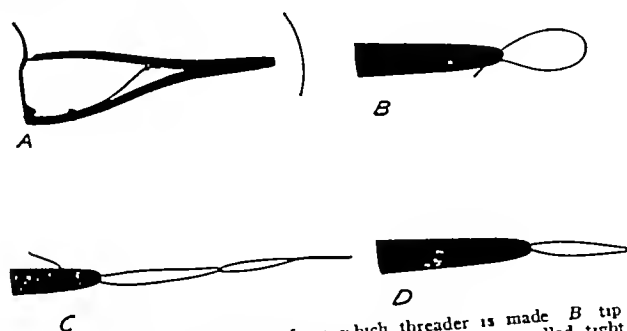


FIG. 1.—A clamp and wire from which threader is made. B tip of clamp with wire loop. C fine silk thread through loop pulled tight to shape the wire. D finished apparatus.

The ends of a piece of wire approximately 3 cm long are grasped in a needle holder to form a loop. A fine silk suture is passed through the loop and pulled tight to shape the end of the wire so that it will readily pass through the eye of a needle. As many as twelve needles can be threaded onto this doubled wire. The suture material is passed through the loop. The needles are then grasped between the forefinger and the thumb so that they will pass freely along the wire. With a

quick movement, the suture material is pulled through all the eyes. If this maneuver is done slowly, or if any of the needles have defective eyes, the silk will be frayed and will not pass. Continuing to hold the needles between the index finger and the thumb, one can pull through and cut off with its needle the required silk for each suture. A convenient instrument for

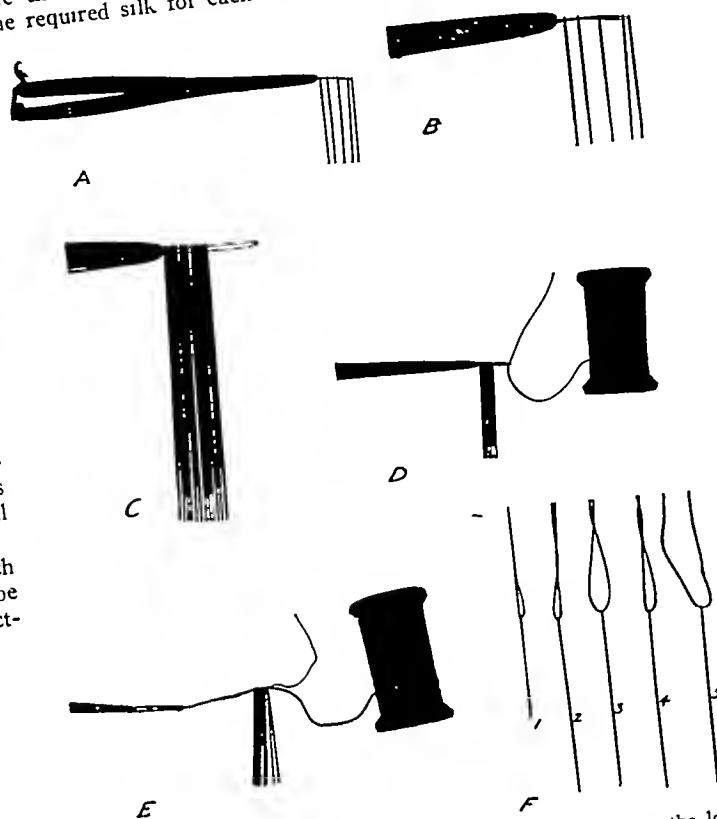


Fig. 2.—A needle threader with needles being threaded over the loop. B tip of A enlarged. C, needles threaded over loop. D suture material passed through the loop. E needles pulled over the suture. F needles threaded by this method: 1 Kirby silk and number 16 needle, 2 size A silk twist and number 9 needle, 3 size B silk twist and number 9 needle, 4 size C silk twist and number 9 needle, 5 braided silk number 6 and number 9 needle.

cutting the sutures is made by mounting a double edged razor blade on a cork. In this manner one can easily thread a gross of ordinary number 9 milliner's needles with fine silk in an hour. Likewise, braided silk is threaded into needles with small eyes.

Best Corresponding Sizes of Wire, Needles, and Suturing Materials

Wire	Needle	Suture Material
Spring brass number 38 B & S* (0 005)	No. 9	Silk twist (A)
Spring brass number 38 B & S* (0 005)	No. 9	Silk twist (B)
Spring brass number 40 B & S (0 003)	No. 9	Braided silk number 6
Spring brass number 40 B & S (0 003)	No. 9	Silk twist (A)
Spring brass number 40 B & S (0 003)	No. 9	Silk twist (B)
Spring brass number 40 B & S (0 003)	No. 9	Silk twist (C)
Platinum 0 001	No. 12	Chinese and Kirby silk
Platinum 0 001	No. 16	Chinese and Kirby silk

* This size wire is ordinarily used for stylets in hypodermic needles.

Also this procedure can be applied at the operating table. If a wire loop with a needle threaded onto it is available on the instrument table, it can be used for the ready rethreading of a continuous suture which has become unthreaded during the course of an operation. This might save one much time and embarrassment especially when fine needles are used, as in suturing blood vessels.

Clay and Webster streets

⁴ Spillman M. L., *Dermatitis Venenosa Caused by the Oak, Bull. H. and C. 1921, 23, 6, p. 33.*
⁵ Horland, *Skin Diseases Caused by Chestnut Tree Wood*, *Gaz. d. Med. 1914, 1, 1, p. 1.*
⁶ The Department of Surgery, Stanford University School of Medicine.

APPENDECTOMY FOR SWALLOWED CLINICAL
THERMOMETER

GEORGE K. NUTTING, M.D., WASHINGTON, D. C.

Large foreign bodies are rarely swallowed except by children and insane persons. Most of these foreign bodies pass through the gastro-intestinal tract and are expelled in the feces. Operation for their removal from the intestine is rarely necessary.

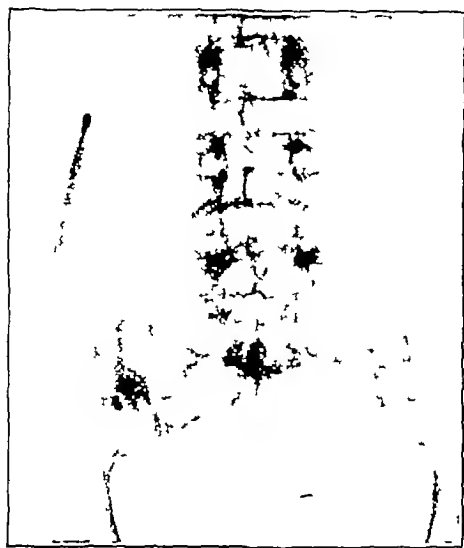


Fig 1—Clinical thermometer in right lower quadrant of the abdomen

The passage of foreign bodies through the intestinal canal is often surprising. Lediard¹ reports the passage of a 3¼ inch latchkey. I have observed two cases in which large open safety pins passed through without difficulty. Lodgment is an accident and will probably occur at the pylorus, at the ileocecal valve or at one of the flexures of the colon. A lodged foreign body may cause ulceration, perforation, abscess, peritonitis or intestinal obstruction. Operation is necessary in these cases.

I report a case in which a swallowed clinical thermometer was removed from the colon by appendectomy. This is a rare surgical procedure for the removal of intestinal foreign bodies. Review of the literature shows only the case of Stangl,² in which a nail was removed from the cecum.

REPORT OF CASE

J. K., a white man, aged 28, was brought to Gallinger Hospital, Aug 28, 1932, by the police for observation and report of his mental status. He had attempted suicide by jumping in front of a street car. He was put to bed and a physical examination showed general abrasions and contusions. An orderly was instructed to take the patient's temperature by rectum. He inserted the thermometer and left the room for a short interval to attend another patient. When he returned, the thermometer was missing. Rectal examination and a thorough search of the bed and room failed to reveal the thermometer. The patient finally admitted having swallowed it. A roentgenogram of the abdomen showed a clinical thermometer in the stomach. Daily pictures were made to trace its movement. By the fifth day it had progressed to the right lower quadrant (fig 1). Repeated examinations showed that it remained stationary in that location. At no time did the patient have symptoms referable to the foreign body. I saw the patient in consultation, September 29, and advised operation because of the apparent lodgment.

Tribrom-ethanol and gas anesthesia was used. The abdomen was explored through a right rectus incision. The thermometer

The passage of foreign bodies through the intestinal canal is often surprising. Lediard¹ reports the passage of a 3¼ inch latchkey. I have observed two cases in which large open safety pins passed through without difficulty. Lodgment is an accident and will probably occur at the pylorus, at the ileocecal valve or at one of the flexures of the colon. A lodged foreign body may cause ulceration, perforation, abscess, peritonitis or intestinal obstruction. Operation is necessary in these cases.

I report a case in



Fig 2—Appendix containing thermometer

was palpated within the ascending colon. It was milked along the intestine and out into the appendix after the meso-appendix had been ligated and divided. Appendectomy was then performed with the thermometer in the appendix (fig 2). An uneventful recovery followed the operation.

1606 Twentieth Street N.W.

DYSTOCIA FROM RETRODISPLACEMENT OF LEFT FORE
ARM COMPLICATED BY PRENATAL SUBGLENOID
DISLOCATION OF THE LEFT SHOULDER

P. L. THIBAUT, M.D., NEW ORLEANS

This case is reported because of its rarity. DeLee¹ states that approximately twenty-five cases have been reported, the majority by European obstetricians. All the cases, beginning with that of Sir J. Y. Simpson² in 1850, occurred in women who had already borne children, multiparas being more prone to irregular action of the uterus than primiparas. This anomaly of attitude involved one arm in all but two cases, in these, both arms were retrodisplaced. Delivery was spontaneous in two of the cases. A few forceps extractions were performed, with or without injury to the fetus. Version proved the method of choice in the majority of the cases. In one case, forcible extraction with Tarnier forceps caused decapitation of the child. In all cases diagnosed before delivery, an attempt at reduction of the position was made, and, in most instances, was successful.

REPORT OF CASE

Mrs. E. H., aged 23, came to my office during her third month of pregnancy. She was in good physical condition except for her weight, which was 170 pounds (77 Kg.). Her pelvic measurements were normal. There was nothing in the family or personal histories having any bearing on the case. She had borne two children. The first, a girl weighing 8 pounds 4 ounces (3,742 Gm.), was delivered with forceps after thirty-six hours of labor, Jan 17, 1930. The difficulty in this case, as far as I could learn, was due to an impacted head.

March 16, 1931, a second girl, weighing 8 pounds 13 ounces (3,997 Gm.), was delivered normally after four and one-half hours.

Aug 10, 1932, the patient was admitted to Hotel Dieu at 3 a.m., uterine contractions having begun two hours earlier.

At 3:30 I examined her vaginally. The uterus showed a two fingers' dilatation. The position was right occipito-anterior.

At 5:40 the dilatation had increased to four fingers. The pains were slightly irregular and showed no increase in intensity. The patient at no time gave any evidence of much suffering.

At 8:30, being convinced that some impediment, not apparent, accounted for the delay, I sent the patient to the delivery room. Ethylene and ether anesthesia was given. I found the dilatation complete, the bag of waters protruding well into the vagina. I ruptured the bag, and a large quantity of amniotic fluid escaped. The head, however, failed to engage. I then introduced my hand into the uterus and found the left forearm wrapped around the back of the child's neck. Attempts to dislodge the forearm from this position were unsuccessful, so version was decided on. On account of the large size of the fetus (9 pounds 13 ounces, 4,450 Gm.), I was unable to bring down both feet before turning, so had considerable difficulty in delivering.

At 8:59 the extraction of the child, a boy, was accomplished. As the baby was breathing poorly, he was placed in the Drinker respirator while I gave my attention to the mother. The baby remained in the respirator until the arrival of Dr. R. E. de la Houssaye, who was to have charge of him. As he was examining the baby and making traction on the left arm, the click of the head of the humerus snapping back in place was distinctly audible to those of us who were in the room.

I judge that the dislocation was caused, in utero, by forcible elevation of the elbow impinging on the horizontal ramus of the pubis. This elevation occurred with each contraction of the uterus in nature's attempt to force the head to engage. Repeated contractions finally lifted the head of the humerus from its position in the glenoid cavity, causing a subglenoid dislocation.

From Gallinger Municipal Hospital, Georgetown University Division.
¹ Lediard, H. A. Passage of Latchkey Through the Intestinal Canal, *Edinburgh M. J.* 29: 213 (Oct.) 1922.

² Stangl, F. H. Intestinal Foreign Bodies, *Minnesota Med.* 13: 909 (Dec.) 1930.

¹ DeLee, J. B. Principles and Practice of Obstetrics, ed. 4 Philadelphia W. B. Saunders Company 1927.
² Simpson, J. Y. Obstetric Memoirs, 1850.

tion. The dislocation, which was not diagnosed before delivery, accounted for my futile attempts at reduction of the anomaly. The mother and baby showed no ill after-effects.

COMMENT AND CONCLUSIONS

This case presents four points of special interest

(a) The anomaly of attitude was unusual
(b) It was necessary to invade the uterine cavity for a proper appreciation of the conditions presenting. Neglect of this complete examination might have led us into the error of using solution of pituitary or of resorting to forceps to finish the delivery. Either of these procedures might prove disastrous, to the mother by a possible rupture of the uterus, to the child by mutilation.

(c) Version and extraction constitute the method of choice.

(d) As far as I have been able to ascertain, this is the first case of retrodisplacement of the forearm complicated by dislocation of the shoulder.

5216 Pitt Street.

A QUICK METHOD OF FIXATION, DEHYDRATION AND EMBEDDING OF TISSUES

E. B. ERSKINE, M.D., NEW YORK
Lieutenant, M.C., U.S. Navy

The need for quick methods of fixation, dehydration and staining of tissues is evinced by an increasing number of suggestions in the form of articles published. To this number I believe it is my duty to add my contribution, for, since the time factor is conceded to be most important when consistent with practical results, the method in use in the laboratory of the U.S. Naval Hospital requires forty-five minutes for fixation, dehydration, embedding and cutting of fresh tissue. Staining is done by the usual methods or, when greater haste indicates or other considerations suggest it, the Rhamy triple stain method is used.

The method is largely the product of the efforts of A. L. Maimes, pharmacist's mate first class, working at the U.S. Naval Medical School and in this laboratory.

Tissue sections prepared and stained in the following manner during the past three years have been filed with sections which have been prepared in the slower routine manner and have been found to remain in a similar state of preservation. Fresh tissue is cut into convenient size and about 2 mm thick. This tissue is placed in a test tube of neutral "solution of formaldehyde-U.S.P." diluted 1:10 and gently boiled for a period of three minutes, during which time five test tubes, appropriately labeled and containing respectively (1) 80 per cent alcohol, (2) 95 per cent alcohol, (3) 100 per cent alcohol, (4) chloroform and (5) 95 per cent alcohol, are placed in a water bath and the temperature brought to 55°C.

The temperature is accurately gaged by a thermometer placed in the test tube prior to placing the tissue in the tube, whereupon the thermometer is dried and placed in the succeeding tube solution. It will be noted later that tube 5, containing 95 per cent alcohol, serves no purpose other than a check on the temperature during the time the tissue is in tube 4.

The fixation of the tissue in boiling formaldehyde solution having been completed, the solution is poured off and the tissue dried on blotting paper. It is then placed successively in the solution contained in tubes 1, 2, 3 and 4 for a period of five minutes in each.

The next two steps are carried out in the embedding oven at the same temperature (55°C). Chloroform and paraffin (equal parts) and paraffin are always kept in our oven at the temperature mentioned and consequently are always available for this method. The tissue is kept in each solution for five minutes whereupon it is embedded in paraffin, immediately chilled in a pan of ice water, cut and mounted on a slide.

It will be readily appreciated that tissue which has been previously fixed in formaldehyde and small delicate tissue masses such as mice ovaries to be diagnosed in the Aschheim-Zondek test, need not be boiled in the formaldehyde solution. It is our habit in the latter instance to allow the mice ovaries to stand in 10 per cent solution of formaldehyde at room temperature for the length of time necessary to stabilize the temperature of the dehydrating solutions in the water bath.

U.S. Naval Hospital

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY OF THE AMERICAN MEDICAL ASSOCIATION HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT
H. A. CARTER, Secretary

COLD-QUARTZ ULTRAVIOLET GENERATOR ACCEPTABLE

The Cold-Quartz Ultraviolet Generator (a trade name) is manufactured by the Electro Therapy Products Corporation, Ltd., of Los Angeles. The apparatus consists essentially of a Geissler tube (grid) made of fused quartz, a step-up transformer and a regulating choke coil. The quartz tubing is about 9 mm in diameter and about 7 feet in length, forming a five turn hexagonal grid. It is highly evacuated of air and the space is supplanted with an atmosphere of rare gases, neon, krypton and argon, and a few drops of mercury.

The Cold-Quartz Ultraviolet Generator operates on 110-120 volt alternating current. The body model draws on the secondary side of the transformer 50 milliamperes and the orificial model, 15 milliamperes. The units will not operate on direct current without additional special apparatus.

The Cold-Quartz Generators are made in several models. The Cold-Quartz Ultraviolet Generator, Model C-7, is a combination of complete body and orificial generator with demountable grid and special type orificial units. The shipping weight is 68 pounds.

The Cold-Quartz Ultraviolet Generator, Model B-7, is a body irradiation type. The shipping weight is 62 pounds.

The Cold-Quartz Ultraviolet Generator, Model S-7, is arranged for the selection of four cavity orificial units. The shipping weight is 43 pounds.

The Cold-Quartz Ultraviolet Generator, Model C-7-10, is a more elaborate reproduction of Model C-7. The shipping weight is 145 pounds.

The Cold-Quartz Ultraviolet Generator, Model P-7, is a portable orificial generator. The shipping weight is 23 pounds.

Figure 1 shows the combination body and orificial model.

The Council examined an orificial model of the Cold-Quartz Generator. This quartz tubing is about 7 mm in diameter, about 6½ inches in length, and is slightly curved and tapered at its distal end. However, the emission characteristics are alike. The orificial model examined is designed to operate on 110 volts, 60 cycle alternating current. By means of a step-up transformer, 500 volts is impressed on the terminals of the tube. The current flowing in the tube was between 25 and 15 milliamperes. The maximum power consumed by the apparatus, transformer, grid and connections, was from 60 to 65 watts.

When the luminous tube of the Cold-Quartz Ultraviolet Generator was placed lengthwise against the slit of the quartz spectroscope and a thermopile radiometer was used, it was found that 96.1 per cent of the total erythematogenic rays (of wavelengths 3130 angstrom units and shorter rays) are emitted by the 2537 angstrom line. By means of a filter method it was found that 97.8 per cent of the erythematogenic rays are contained in the strong emission line at 2,537 angstroms. This line is highly germicidal and will penetrate the skin. The intrinsic intensity of the 2,537 angstrom line is relatively high, being 215 microwatts per square centimeter at the surface of the quartz tube. The ultraviolet energy emitted on high voltage is 1.6 times that emitted at low voltage.

With the use of an E 31 Hilger quartz spectroscope spectrographs of the light emitted by the Cold-Quartz Orificial Model

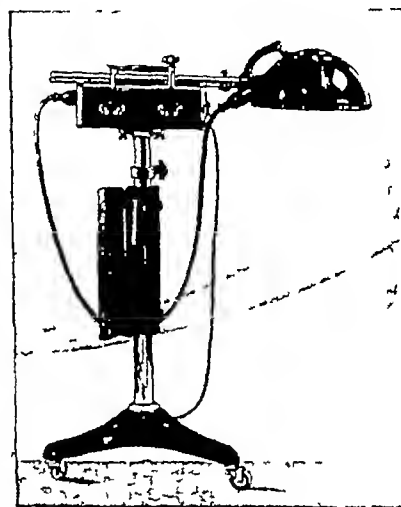


Fig. 1—Cold Quartz Ultraviolet Generator

were photographed by Prof I S Bowen of the Department of Physics in the California Institute of Technology With a portion of the tube of the Cold-Quartz Lamp placed directly in contact with the slit of the spectroscope, exposures both of thirty seconds and of two minutes were made on Schumann plates, which are highly sensitive to radiations in the short wavelength region

The short wavelength lines in the ultraviolet region known as 1,849, 1,942, 1,973, 2,028 and 2,053 of the mercury spectrum were revealed on Schumann plates, as well as other lines of the mercury spectrum to and including line 4,358 Figure 2 is a reproduction of the spectrum emitted by the Cold-Quartz Ultraviolet Generator

The evidence submitted by the firm indicates that the quantity of proportion of ultraviolet rays at lines 1,840, 1,942 and 1,973 emitted by the lamp examined by Professor Bowen is small In the spectrogram accompanying Professor Bowen's report these lines are quite weak

Dr S S Mackeown conducted an investigation and submitted evidence proving that the temperature of the lighted tube of the Cold-Quartz Ultraviolet Generator, when inserted in the vagina of a 30 pound dog, did not exceed 44.5 C (112.1 F) with a current of 15 milliamperes flowing through the lamp When the tube is inserted in a cavity in the body it is cooled by direct contact with the tissue, and the small amount of heat that is generated by the tube is carried away by the blood stream

The summary of a report¹ of an investigation carried out at the University of Illinois by Drs Albert Bachem and C I Reed reads

1 The radiation of the cold quartz body lamp is extremely constant after a building up time of about one minute, a factor of great importance concerning accurate dosage.

2 Most of the ultraviolet light of the cold quartz lamp is concentrated into the spectral area around 254 mμ (2,537 Å)

3 The ultraviolet given off by the cold quartz lamp has enough penetrating power through the atmospheric air (and through the epidermis) to cause biological and therapeutic effects

4 The light of the cold quartz lamp has definite antirachitic power, this makes the lamp useful for the prevention and healing of rickets

5 The antirachitic effect of cold quartz light is attributable more to the abundance of rays of short wavelength in the region of 254 mμ (2,537 Å) than to the weak components of longer wavelength

In another report,¹ prepared by Dr Harry Goldblatt at the request of the Council and under a grant by the Council, the author writes in the conclusions

It has been shown that the radiations from the Cold Quartz mercury lamp are powerfully antirachitic Direct irradiation for three seconds daily prevented the development of rickets in rats fed on a rickets producing diet Direct irradiation for ten seconds daily brought about complete healing of rickets in severely rachitic rats Under the conditions mentioned in the text, exposure of ergosterol dissolved in olive oil to the radiations from a cold quartz mercury lamp for only one minute resulted in the antirachitic activation of the solution of which 0.002 mg of irradiated ergosterol and 0.001 cc of irradiated olive oil together prevented and cured rickets in rats The minimal protective and curative doses were not determined

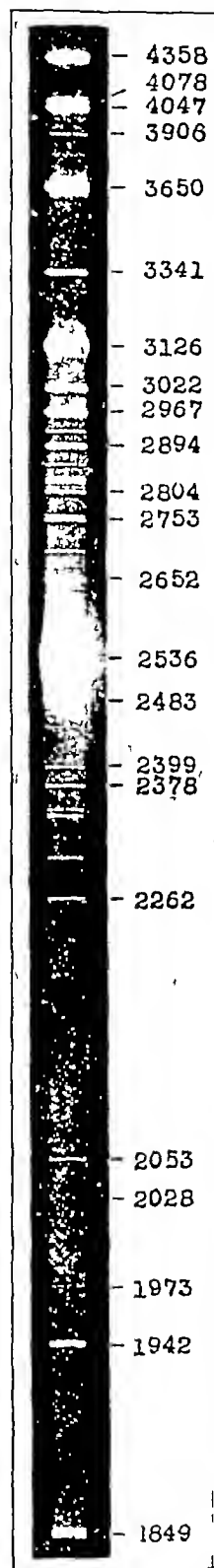


Fig 2—Spectrum

ergosterol and 0.001 cc of irradiated olive oil together prevented and cured rickets in rats The minimal protective and curative doses were not determined

The Council on Physical Therapy has not received from the firm conclusive evidence to substantiate the claim that radiations from this lamp will cure or protect against rickets in children It is reasonable to assume, however, that the cure of rickets in animals with radiations from the Cold-Quartz Ultraviolet Generator might well be interpreted as sufficient evidence, and equal

¹ Mimeograph copies can be secured from the Council on Physical Therapy on receipt of a self addressed stamped envelop

effectiveness may be presumed when the radiations are applied to rachitic babies

A point still under consideration is whether the radiation from the strong emission line 2,537 will at the same time destroy vitamin D as well as activate it The cold-quartz generator seems to have a place in the treatment of skin diseases and infections, but this has not been fully established

The Council does not recommend the Cold-Quartz Ultraviolet Generator for use in dental therapeutics Conclusive scientific evidence must be presented to substantiate its efficacy as a dental therapeutic agent before the Council will accept such claims The use of the Cold-Quartz Ultraviolet Generator by a layman as a sunlamp is considered dangerous The Council advises the use of goggles by the operator and the patient

On the basis of the foregoing evidence that the lamps will activate ergosterol and create vitamin D, the Council on Physical Therapy declares the aforementioned Cold-Quartz Ultraviolet Generators eligible for inclusion in its list of acceptable devices for one year

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION

P N LEECH, Secretary

DEXTROSE (See New and Nonofficial Remedies, 1932, p 262)

The following dosage forms have been accepted

Sterile 5% Dextrose Solution in Vacoliter Container Each 100 cc contains dextrose, U S P, 5.25 Gm

Prepared by Don Baxter Intravenous Products Corporation, Chicago

Sterile 10% Dextrose Solution in Vacoliter Container Each 100 cc contains dextrose, U S P, 10.5 Gm

Prepared by Don Baxter Intravenous Products Corporation, Chicago

SCOPOLAMINE STABLE-ROCHE (See New and Nonofficial Remedies, 1932, p 354)

The following dosage form has been accepted

Ampules Scopolamine Stable Roche $\frac{1}{100}$ gr 1 cc Each ampule contains 1.2 cc. (1 cc contains 0.0006 Gm of scopolamine hydrobromide)

REPORTS OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT

P N LEECH, Secretary

SOME ENDOCRINE PREPARATIONS OF THE ROVIN LABORATORIES NOT ACCEPTABLE FOR N N R

The A M Rovin Laboratories, Inc., Detroit, submitted for consideration of the Council a series of "uniglandular" products The firm submitted no advertising for the products but presented descriptions and statements of the claims made for the various preparations, together with trade packages of each The Council found the following unacceptable for the reasons stated

Corpus Luteum Solution (Rovin), it is stated, "represents" 19½ grains of fresh, separated corpus luteum in 1 cc It is not claimed to be assayed biologically As a "composite mixture of the various hormones present in the Corpus Luteum" it is proposed for use in dysmenorrhea, the nausea of early pregnancy, habitual abortion without demonstrable cause, and sterility The Council held on the basis of available evidence that the use of ovarian preparations containing or claimed to contain any but the follicular hormone (for which an acceptable method of assay is available) is not justified except for purposes of controlled experimentation (THE JOURNAL, Jan 20, 1932, p 402) Since no supporting evidence is offered in favor of this preparation, it is not acceptable for New and Nonofficial Remedies

Lymphatic Solution Rovin, it is stated, "represents" 35 grains of fresh lymphatic glands in 1 cc The firm states further that the chemistry and therapeutic indications of this gland are still in the experimental stage No evidence for the pre

sumptive value of this indefinite preparation having been submitted, it is unacceptable for New and Nonofficial Remedies

Kidney Solution (Rovin), it is stated, "represents" 30 grains of fresh kidney substance in 1 cc. The firm further states that "the chemistry and therapeutic indications of this gland are still in the experimental stage. It is claimed to reduce albumin and increase urea." No evidence for the therapeutic value of this indefinite preparation having been presented, it is unacceptable for New and Nonofficial Remedies

Mammary Solution (Rovin), it is stated, "represents" 40 grains of fresh mammary substance in 1 cc. The firm further states that "Mammary gland preparations are believed to induce contraction of the uterus and are employed in uterine hemorrhage and discharge. They have also been suggested in deficient lactation, atrophy of the breasts, and in ovarian and tubal diseases." On account of the slight evidence for the value of mammary gland preparations in the course of many years, the Council refused further recognition of them as long ago as 1921. No new or convincing evidence is offered for the preparation of the A. M. Rovin Laboratories, Inc., and the product is therefore unacceptable for New and Nonofficial Remedies

Ovarian Solution (Rovin), it is stated, "represents" 46 grains of fresh cow ovarian glands. As a "composite solution of the active hormones in the fresh ovarian tissue" it is claimed to be "indicated wherever there is a deficiency or irregularity of ovarian action." The product is not stated to be biologically assayed by an acceptable method, or by any method. This preparation is therefore not acceptable for New and Nonofficial Remedies for the same reason that excludes Corpus Luteum Solution (Rovin)

Ovarian Residue Solution (Rovin), it is stated, "represents" 31 grains of fresh ovarian residue from cows' ovaries in 1 cc. and "is indicated in late development of puberty, infantilism, irregular menstruation at puberty, etc." It is not stated to be biologically assayed by an acceptable method, or by any method. It is therefore unacceptable for New and Nonofficial Remedies for the same reason that excludes Corpus Luteum Solution (Rovin)

Placenta Solution (Rovin), it is stated, "represents" 6 to 7 grains of fresh placenta substance in each cubic centimeter and is not biologically assayed. It is claimed that the preparation is "indicated where it is desired to inhibit the secretion of milk while preparing the breasts for such activity" and "in mothers whose breast fed infants do not thrive." These claims appear to be purely theoretical, no evidence being offered in support. The preparation is therefore not acceptable for New and Nonofficial Remedies

Thyroid Solution (Rovin) is claimed to represent in 1 cc. 0.05 per cent of iodine. The firm states that it is not biologically tested and does not give the method used to determine the iodine content. Since there is no evidence that solutions of thyroid have any advantage over the dry gland, this indefinite product is illogical and superfluous and therefore unacceptable for New and Nonofficial Remedies

Pituitary Anterior Lobe Solution (Rovin) is stated to "represent" in 1 cc. 18½ grains of fresh anterior pituitary lobe and is not claimed to be biologically assayed, but is claimed to "represent a composite mixture of the various hormones in the Anterior Lobe." Since it is not assayed, and since no details as to the method of manufacture or evidence as to its therapeutic value are presented, this preparation is unacceptable for New and Nonofficial Remedies

Pituitary Anterior Lobe Sex Hormone Solution (Rovin) is stated to consist of a solution of the sex hormone of the anterior pituitary lobe which has the property of maturing the immature rat. It is stated to be biologically assayed and the method of assay is outlined. Since there is submitted however no evidence whatever as to its value as a therapeutic agent, this preparation is unacceptable for New and Nonofficial Remedies

Suprarenal Gland Solution (Rovin) it is stated "represents" 30 grains of whole fresh suprarenal gland in 1 cc. No method of assay or of manufacture is given. The firm states that it probably consists of a composite mixture of the various hormones of the whole suprarenal gland and "as such it is indicated in Asthma, Bronchial Spasms, Addison's Disease, Cholera and Graves Disease. The extreme indiffiniteness of the composition of this product and the lack of evidence of

its therapeutic value render it unacceptable for New and Nonofficial Remedies

Suprarenal Cortex Solution (Rovin), it is stated, "represents" 77½ grains of fresh suprarenal cortex in 1 cc. No method of assay or of manufacture is given. It is claimed to be "indicated in hypo-adrenia, true Addison's disease and the minor functional types." In the absence of information as to the method of standardizing or of control of the composition of this product as well as lack of evidence as to its therapeutic value, it is unacceptable for New and Nonofficial Remedies

Thymus Solution (Rovin), the firm claims, "represents" in 1 cc. 84 grains of fresh thymus gland. The firm states that the product is not biologically assayed and furnishes no statement of the method of manufacture or control. The claim is advanced that "Thymus Solution, when combined with hypophyseal extract, acts specifically to relieve exhaustion in all cases of childbirth in which it is applied." There is no evidence of the therapeutic value of this product and it is therefore unacceptable for New and Nonofficial Remedies

Liver Solution (Rovin) is stated to be biologically tested by its ability to lower blood pressure, but no protocols of tests or of method of manufacture are supplied. It is claimed to be "indicated in Hypertension, Eclampsia and many conditions of defective hepatic intoxication." The value of liver solution in the reduction of hypertension has not been proved, and no supporting evidence is offered by the firm. The product is unacceptable for New and Nonofficial Remedies

Spleen Solution (Rovin) "represents," it is stated, 80 mg of solids coming from the spleen, for Spleen Solution 500% (Rovin) no statement of composition is given. The firm states that "these solutions are standardized on the basis of glandular solids in the finished solution" but gives no details of the process of manufacture. Spleen Solution (Rovin) is claimed to be indicated in eczema and urticaria. No acceptable evidence exists as to the value of spleen in these conditions and the firm has submitted none. These spleen products are therefore unacceptable for New and Nonofficial Remedies

Orchic Extract (Rovin) is stated to be suitable for injection and to consist of "a stable potent solution, each cc representing the essential male sex principle in 227 grams of fresh Orchic substance." The product is stated to be standardized by its growth stimulating effect upon the combs of capons. The firm states that "it is reasonably safe to assume that the male hormone can stimulate the secondary sex characteristics in the human." Orchic Solution (Rovin), it is claimed, "represents" in 1 cc. 55 Gm. of fresh orchic glands from beef and "consists of the hormones from fresh Orchic glands, whose function is to control the masculine sex characteristics." The firm states that this product does not lend itself to standardization, and no method of manufacture or of control is given. Prostate Gland Solution (Rovin) is claimed to be therapeutically useful "in atrophy and diseases of the testicles, also in enlarged prostate gland." It is claimed to "represent" in 1 cc. 35 grains of fresh prostate gland. No method of manufacture or of control is given. The mode of administration is not indicated. The Council knows of no scientific evidence that orchic substance or prostate gland substance taken by mouth has any effect on the human being. Furthermore the work of Gallagher and Moore showed that after injection no action can be expected unless a testicular product contains far larger amounts of testicular hormone than these preparations can possibly contain in a practical dosage. The firm submits no evidence for the efficacy of these products, and in the absence of other favorable evidence they are unacceptable for New and Nonofficial Remedies

The Council declared Corpus Luteum Solution (Rovin), Kidney Solution (Rovin), Lymphatic Solution (Rovin), Mammary Solution (Rovin), Ovarian Solution (Rovin), Ovarian Residue Solution (Rovin), Thyroid Solution (Rovin), Pituitary Anterior Lobe Solution (Rovin), Suprarenal Gland Solution (Rovin), Suprarenal Cortex Solution (Rovin), Thymus Solution (Rovin), Spleen Solution (Rovin), Spleen Solution 500% (Rovin), Orchic Solution (Rovin), and Prostate Gland Solution (Rovin) unacceptable for New and Nonofficial Remedies because they are products of indefinite composition and of undemonstrated therapeutic value and declared Pituitary Anterior Lobe Sex Hormone Solution (Rovin), Liver Solution (Rovin) and Orchic Extract (Rovin) unacceptable because they are products of undemonstrated therapeutic value.

Committee on Foods

REPORTS OF THE COMMITTEE

THE COMMITTEE HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORTS
RAYMOND HERTWIG, Secretary

NOT ACCEPTABLE

FIG AND BRAN, Bran Plus Sun Ripe Figs

The Battle Creek Food Company, Battle Creek, Mich., submitted to the Committee on Foods a product called "Fig and Bran" prepared from wheat bran, California figs, malt extract, sucrose, wheat germ, salt and an extract of brewers' yeast and vegetables

Analysis (submitted by manufacturer) —

	per cent
Moisture	82
Ash	74
Fat (ether extraction method)	26
Protein (N \times 6.25)	95
Crude fiber	80
Carbohydrates other than crude fiber (by difference)	64.3

Discussion of Name—The name "Fig and Bran," by giving first place to "figs," emphasizes the fig content over that of the bran, thereby connoting that the figs are in greater proportion than is the bran, which is contrary to fact, the bran being in much the greater proportion. The name "Fig and Bran" therefore is misinformative and misleading. "Bran and Figs," giving first place to the predominant ingredient, is an appropriate, correctly informative name for the product.

The company was advised of the Committee's opinion but declines to make the recommended name change on the grounds that such change would be detrimental to the product from a sales standpoint in that past promotional advertising has built up a certain trade acceptance of the present name. This product therefore is not listed among the Committee's accepted foods.

NOT ACCEPTABLE

HOYLAND'S SMA\—ALL OF THE WHEAT TOASTED

The Hoyland Flour Mills Company, Kansas City, Mo., submitted to the Committee on Foods a lightly toasted, coarsely ground wheat with fine flour removed called "Hoyland's Sma\—All of the Wheat Toasted"

Discussion of Label—The following statements appear on the package label: "Sma\ is extremely high in food value and containing all the bran is a natural laxative. Because of its high phosphorus and calcium content—in a natural state—Sma\ makes an ideal food for growing children. Nature's food as nature intended." Whole wheat and cereals are poor providers of calcium nutritional needs. Sma\ therefore "because of its high calcium content" is not "an ideal food for growing children." It is intimated that because the phosphorus and calcium are "in a natural state" they have unique undefined nutritional value. This is an unfounded inference. Calcium claims in public advertising for cereals are misinformative and misleading. Whole wheat is no more "Nature's food" than are other foods, nor is there scientific information that "Nature intended" wheat to be used solely in the form of whole wheat or as "Sma\." The claim is suggestive of current whole wheat food faddism and, although meaningless in fact, is popularly cogent because of its vagueness.

The manufacturer was informed of this opinion but has ignored letters giving the Committee's recommendations. This product, therefore, is not listed among the Committee's accepted foods.

NOT ACCEPTABLE

BUTTERFLY POTATO BREAD

The Geneva Baking Company, New York, submitted to the Committee on Foods a white bread called "Butterfly Potato Bread" prepared from flour, water, a partially hydrolyzed starch, dextrose, salt, lard, powdered skim milk, malt syrup, potato flour, yeast, and a yeast food containing calcium sulphate, ammonium chloride, sodium chloride and potassium bromate.

Discussion of Label and Name—The small amount of potato ingredient in the baking formula does not warrant the name "Potato Bread" and facsimiles of potatoes on the label which are indicative of sufficient potato content to give the bread physical, flavor and nutritional characteristics differing essentially from the usual white bread. The name and label, therefore, are considered misinformative and misleading.

The manufacturer was informed of this opinion but has not expressed himself as willing to change the name and label in accordance with the Committee's recommendations. This bread, therefore, is not listed among the Committee's accepted foods.

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION, AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.



RAYMOND HERTWIG, Secretary

MARECHAL NEIL FLOUR (BLEACHED) PHOSPHATE ADDED

WHITE BILLOWS FLOUR (BLEACHED) PHOSPHATE ADDED

Manufacturer—Collin County Mill & Elevator Company, McKinney, Texas

Description—"All purpose" patent flours milled from hard and soft wheat and containing 0.5 per cent added calcium acid phosphate, bleached.

Manufacture—Selected wheat is cleaned, washed, scoured and milled by essentially the same procedures as described in THE JOURNAL, June 18, 1932, page 2210. Chosen flour streams are blended and bleached with a mixture of benzoyl peroxide and calcium phosphate (1 part to 50,000 parts flour) and with nitrogen trichloride ($\frac{1}{10}$ ounce per barrel). One part of calcium acid phosphate is added to 191 parts flour.

Analysis (submitted by manufacturer) —

	per cent
Moisture	12.0–14.0
Ash	0.77–0.81
Fat (ether extraction method)	0.8–1.0
Protein (N \times 5.7)	9.6–10.0
Crude fiber	0.3–0.4
Carbohydrates other than crude fiber (by difference)	76.5–73.8

Calories—3.5 per gram, 99 per ounce

Claims of Manufacturer—Phosphated patent flours intended especially for biscuit baking.

PANTRY TABLE CREAM (Sterilized)

Manufacturer—S. M. A. Corporation, Cleveland

Description—Canned sterile homogenized cream of 18 per cent milk-fat content.

Manufacture—The cream is removed by a centrifugal separator from pasteurized milk fulfilling the provisions of the sanitary code No. 9 of the Cleveland Board of Health, it is standardized to an 18 per cent milk fat content, is homogenized by being forced under pressure through small apertures, is canned, and processed until sterile.

Analysis (submitted by manufacturer) —

	per cent
Moisture	74.5
Total solids	25.5
Ash	0.6
Fat (ether extract)	18.0
Protein (N \times 6.38)	3.3
Acidity as lactic acid	0.16
Lactose (by difference)	3.4

Calories—1.9 per gram, 54 per ounce

Micro-Organisms—The procedure of manufacture assures a sterile product as shown by the standard methods of bacteriologic analysis of milk of the American Public Health Association.

Vitamins—The vitamin content may be expected to approximate that of the pasteurized cream used.

Claims of Manufacturer—For all table uses of cream.

WHITE BREAD

American Bakers Association Educational Bulletin

Sponsors American Institute of Baking, Chicago

The bulletin in popular language discusses the scientific nutritional values of white bread and its place in the balanced adequate diet. The subject matter is briefly treated under five caption headings

- 1 Is white bread fattening?
- 2 Has white bread been robbed of its minerals?
- 3 Has white bread been robbed of its roughage?
- 4 Is white bread lacking in nutrition?
- 5 Is white bread as wholesome as whole wheat bread?

White bread is essentially a carbohydrate energy food, it contains biologically good quality protein and small proportions of fat and mineral elements, mainly phosphorus and potassium. Milk and skim milk breads contribute significant quantities of calcium also. White bread is not more fattening than are other energy foods, it or other energy foods are essentials of all diets, including reducing diets.

White bread is almost completely digested, its nutrients to like degree, therefore, are available for use by the body. It furnishes little indigestible roughage as compared to whole wheat or bran bread.

Wheat and whole wheat breads are two different types of bread, both are wholesome and nutritious. They may be used interchangeably in the normal diet according to the appeal of palatability. The supplementary food values furnished by whole wheat bread (roughage, iron and vitamin B), which are provided in lesser amounts in white bread, are readily and efficiently furnished by fruits and vegetables, which foods should make up a considerable proportion of all well balanced diets.

The American baker supplies the public with both white bread and whole wheat bread, a decided preference is shown for white bread. There is no justifiable scientific objection to this commercial practice. White bread is an economical source of the energy quota of a complete diet which should contain ample quantities of milk, eggs, meat, fruit and vegetables.

SWEET PEA SELF RISING FLOUR
(BLEACHED)

Manufacturer—Collin County Mill & Elevator Company, McKinney, Texas

Description—A self-rising "stuffed straight" flour containing a blend of flours from hard and soft wheats, calcium acid phosphate, salt and baking soda, bleached.

Manufacture—The ingredients are well mixed in a batch mixer and automatically packed in bags. The flour used is bleached with a mixture of benzoyl peroxide and calcium phosphate (1 part to 50,000 parts of flour) and with nitrogen trichloride ($\frac{1}{2}$ ounce per 196 pounds).

Analysis (submitted by manufacturer) —

	per cent
Moisture	11.0 - 13.0
Ash	3.6 - 4.0
Fat (ether extraction method)	0.9 - 1.2
Protein (N \times 5.7)	9.5 - 10.0
Crude fiber	0.3 - 0.5
Carbohydrates other than crude fiber (by difference)	74.7 - 71.3

Calories—3.4 per gram 97 per ounce.

Claims of Manufacturer—This self-rising flour is specially intended for biscuit baking.

PFIZER GLUCONO-DELTA-LACTONE
(Purified Anhydride of Gluconic Acid)

Manufacturer—Charles Pfizer & Co, Inc, Brooklyn

Description—A purified anhydride of gluconic acid.

Manufacture—The glucono-delta-lactone is prepared by an oxidizing fermentation of dextrose by means of a bacterium which oxidizes the sugar to gluconic acid without any significant formation of other acids. The fermentation is carried out under aerobic conditions. The resulting gluconic acid liquor is concentrated under reduced pressure, cooled and seeded with glucono-delta lactone crystals, and evaporation continued until a substantial crop of glucono-delta-lactone has crystallized out. The crystal crop is separated from the mother liquor by centrifugation washed with cold water and dried by steam

heat. The dried crystals are packed in suitably lined barrels or drums.

Analysis (submitted by manufacturer) —

	per cent
Delta glucono-delta lactone	not less than 99.5
Gluconic acid equivalent	109.6
	Maximum limits of impurities
Residue on ignition	0.1
Gluconic acid anhydrous	trace
Insoluble in water	0.01
Sugars (as d glucose)	0.5
Heavy metals as lead (Pb)	0.002
Iron (Fe)	0.001
Oxalate (C_2O_4)	0.02
Calcium (Ca)	0.05
Sulphate (SO_4)	0.05

Alcohol solubility tests indicate the product to be a delta-lactone and not gamma-lactone.

Alcohol soluble substances are less than 1 per cent.

Sample with acetic anhydride and concentrated sulphuric acid forms crystals of tetra-acetyl gluconic acid monohydrate (melting point 114 C).

Calories—3.5 per gram 99 per ounce. (Calculated from data in International Critical Tables 5:166)

Claims of Manufacturer—An organic acid anhydride for use as an acidulant in foods such as bakery and fruit products, and baking powder. In baking, it gives a retarded evolution of carbon dioxide with baking soda.

HEINZ STRAINED SPINACH

(Already Cooked Without Salt or Sugar)

Manufacturer—H J Heinz Company, Pittsburgh

Description—Canned comminuted and strained cooked spinach retaining in high degree the mineral and vitamin contents of the natural product, no added sugar or salt, the coarser fibrous portion is removed.

Manufacture—The spinach used is grown specially for the Heinz Company, harvested, delivered promptly to the factory, trimmed, thoroughly spray washed and carefully inspected. No blanching process is used, to avoid loss of nutrient material. The clean spinach is drained, placed in a closed cooker the air of which is quickly expelled by steam, and given a light cooking under slight pressure in such a manner as to avoid any loss through leaching or the necessity for adjustment of the consistency of the final comminuted vegetable. The vegetable is removed from the cooker and discharged into a comminution machine, which cuts the vegetable and forces it through a metal plate with coarse perforations. It is then passed through a finishing machine, in which it is forced through a screen of fine perforation. A steam atmosphere surrounds the material during the comminution and sieving process to protect the vitamins and flavors. The coarse material that fails to pass through the fine screen is rejected. The vegetable pulp passing through the screen is collected in glass lined vacuum tanks. When a batch has accumulated, the tank is closed and subjected to a "high vacuum" with gentle agitation to remove dissolved or admixed air. It is filled into enamel lined cans, which are closed under "vacuum" and subjected to adequate heat processing.

Analysis (submitted by manufacturer) —

	per cent
Moisture	93.7
Total solids	6.3
Ash	1.4
Sodium chloride (NaCl)	0.06
Fat (ether extract)	0.5
Protein (N \times 6.25)	2.2
Reducing sugars as invert before inversion	None
Reducing sugars as invert after inversion	None
Sucrose	None
Crude fiber	None
Carbohydrates other than crude fiber (by difference)	0.7
Calcium (Ca)	1.5
Phosphorus (P)	0.057
Iron (Fe)	0.038
	0.001

Calories—0.2 per gram 57 per ounce.

Vitamins—The method of preparation efficiently protects the natural vitamin values. The strained spinach is a rich source of vitamin A and a good source of B, C and G.

Claims of Manufacturer—For table use, but especially intended for infants, children and convalescents and for special smooth diets. Only warming is required for serving. The natural mineral and vitamin values are efficiently retained.

Committee on Foods

REPORTS OF THE COMMITTEE

THE COMMITTEE HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORTS
RAYMOND HERTWIG, Secretary

NOT ACCEPTABLE

FIG AND BRAN, Bran Plus Sun Ripe Figs

The Battle Creek Food Company, Battle Creek, Mich., submitted to the Committee on Foods a product called "Fig and Bran" prepared from wheat bran, California figs, malt extract, sucrose, wheat germ, salt and an extract of brewers' yeast and vegetables

Analysis (submitted by manufacturer) —

	per cent
Moisture	82
Ash	74
Fat (ether extraction method)	26
Protein (N \times 6.25)	95
Crude fiber	80
Carbohydrates other than crude fiber (by difference)	643

Discussion of Name—The name "Fig and Bran," by giving first place to "figs," emphasizes the fig content over that of the bran, thereby connoting that the figs are in greater proportion than is the bran, which is contrary to fact, the bran being in much the greater proportion. The name "Fig and Bran" therefore is misinformative and misleading. "Bran and Figs," giving first place to the predominant ingredient, is an appropriate, correctly informative name for the product.

The company was advised of the Committee's opinion but declines to make the recommended name change on the grounds that such change would be detrimental to the product from a sales standpoint in that past promotional advertising has built up a certain trade acceptance of the present name. This product therefore is not listed among the Committee's accepted foods.

NOT ACCEPTABLE

HOYLAND'S SMA\—ALL OF THE WHEAT TOASTED

The Hoyland Flour Mills Company, Kansas City, Mo., submitted to the Committee on Foods a lightly toasted, coarsely ground wheat with fine flour removed called "Hoyland's Sma\—All of the Wheat Toasted"

Discussion of Label—The following statements appear on the package label: "Sma\ is extremely high in food value and containing all the bran is a natural laxative. Because of its high phosphorus and calcium content—in a natural state—Sma\ makes an ideal food for growing children. Nature's food as nature intended." Whole wheat and cereals are poor providers of calcium nutritional needs. Sma\ therefore "because of its high calcium content" is not "an ideal food for growing children." It is intimated that because the phosphorus and calcium are "in a natural state" they have unique undefined nutritional value. This is an unfounded inference. Calcium claims in public advertising for cereals are misinformative and misleading. Whole wheat is no more "Nature's food" than are other foods, nor is there scientific information that "Nature intended" wheat to be used solely in the form of whole wheat or as "Sma\." The claim is suggestive of current whole wheat food faddism and, although meaningless in fact, is popularly cogent because of its vagueness.

The manufacturer was informed of this opinion but has ignored letters giving the Committee's recommendations. This product, therefore, is not listed among the Committee's accepted foods.

NOT ACCEPTABLE

BUTTERFLY POTATO BREAD

The Geneva Baking Company, New York, submitted to the Committee on Foods a white bread called "Butterfly Potato Bread" prepared from flour, water, a partially hydrolyzed starch, dextrose, salt, lard, powdered skim milk, malt syrup, potato flour, yeast, and a yeast food containing calcium sulphate, ammonium chloride, sodium chloride and potassium bromate.

Discussion of Label and Name—The small amount of potato ingredient in the baking formula does not warrant the name "Potato Bread" and facsimiles of potatoes on the label which are indicative of sufficient potato content to give the bread physical, flavor and nutritional characteristics differing essentially from the usual white bread. The name and label, therefore, are considered misinformative and misleading.

The manufacturer was informed of this opinion but has not expressed himself as willing to change the name and label in accordance with the Committee's recommendations. This bread, therefore, is not listed among the Committee's accepted foods.

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION, AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.



RAYMOND HERTWIG, Secretary

MARECHAL NEIL FLOUR (BLEACHED) PHOSPHATE ADDED WHITE BILLOWS FLOUR (BLEACHED) PHOSPHATE ADDED

Manufacturer—Collin County Mill & Elevator Company, McKinney, Texas

Description—"All purpose" patent flours milled from hard and soft wheat and containing 0.5 per cent added calcium acid phosphate, bleached.

Manufacture—Selected wheat is cleaned, washed, scoured and milled by essentially the same procedures as described in THE JOURNAL, June 18, 1932, page 2210. Chosen flour streams are blended and bleached with a mixture of benzoyl peroxide and calcium phosphate (1 part to 50,000 parts flour) and with nitrogen trichloride ($\frac{1}{2}$ ounce per barrel). One part of calcium acid phosphate is added to 191 parts flour.

Analysis (submitted by manufacturer) —

	per cent
Moisture	12.0–14.0
Ash	0.77–0.81
Fat (ether extraction method)	0.8–1.0
Protein (N \times 5.7)	9.6–10.0
Crude fiber	0.3–0.4
Carbohydrates other than crude fiber (by difference)	76.5–73.8

Calories—35 per gram, 99 per ounce

Claims of Manufacturer—Phosphated patent flours intended especially for biscuit baking.

PANTRY TABLE CREAM (Sterilized)

Manufacturer—S. M. A. Corporation, Cleveland

Description—Canned sterile homogenized cream of 18 per cent milk-fat content.

Manufacture—The cream is removed by a centrifugal separator from pasteurized milk fulfilling the provisions of the sanitary code No. 9 of the Cleveland Board of Health, it is standardized to an 18 per cent milk fat content, is homogenized by being forced under pressure through small apertures, is canned, and processed until sterile.

Analysis (submitted by manufacturer) —

	per cent
Moisture	74.5
Total solids	25.5
Ash	0.6
Fat (ether extract)	18.0
Protein (N \times 6.38)	3.3
Acidity as lactic acid	0.16
Lactose (by difference)	3.4

Calories—19 per gram, 54 per ounce.

Micro-Organisms—The procedure of manufacture assures a sterile product as shown by the standard methods of bacteriologic analysis of milk of the American Public Health Association.

Vitamins—The vitamin content may be expected to approximate that of the pasteurized cream used.

Claims of Manufacturer—For all table uses of cream.

WHITE BREAD

American Bakers Association Educational Bulletin

Sponsors American Institute of Baking, Chicago

The bulletin in popular language discusses the scientific nutritional values of white bread and its place in the balanced adequate diet. The subject matter is briefly treated under five caption headings

- 1 Is white bread fattening?
- 2 Has white bread been robbed of its minerals?
- 3 Has white bread been robbed of its roughage?
- 4 Is white bread lacking in nutrition?
- 5 Is white bread as wholesome as whole wheat bread?

White bread is essentially a carbohydrate energy food, it contains biologically good quality protein and small proportions of fat and mineral elements, mainly phosphorus and potassium. Milk and skim milk breads contribute significant quantities of calcium also. White bread is not more fattening than are other energy foods, it or other energy foods are essentials of all diets, including reducing diets.

White bread is almost completely digested, its nutrients to like degree, therefore, are available for use by the body. It furnishes little indigestible roughage as compared to whole wheat or bran bread.

Wheat and whole wheat breads are two different types of bread, both are wholesome and nutritious. They may be used interchangeably in the normal diet according to the appeal of palatability. The supplementary food values furnished by whole wheat bread (roughage, iron and vitamin B), which are provided in lesser amounts in white bread, are readily and efficiently furnished by fruits and vegetables, which foods should make up a considerable proportion of all well balanced diets.

The American baker supplies the public with both white bread and whole wheat bread, a decided preference is shown for white bread. There is no justifiable scientific objection to this commercial practice. White bread is an economical source of the energy quota of a complete diet which should contain ample quantities of milk, eggs, meat, fruit and vegetables.

SWEET PEA SELF RISING FLOUR
(BLEACHED)

Manufacturer—Collin County Mill & Elevator Company, McKinney, Texas

Description—A self-rising "stuffed straight" flour containing a blend of flours from hard and soft wheats, calcium acid phosphate salt and baking soda, bleached.

Manufacture—The ingredients are well mixed in a batch mixer and automatically packed in bags. The flour used is bleached with a mixture of benzoyl peroxide and calcium phosphate (1 part to 50 000 parts of flour) and with nitrogen trichloride ($\frac{1}{10}$ ounce per 196 pounds).

Analysis (submitted by manufacturer) —

Moisture	per cent
Ash	11.0 - 13.0
Fat (ether extraction method)	3.6 - 4.0
Protein (N \times 5.7)	0.9 - 1.2
Crude fiber	9.5 - 10.0
Carbohydrates other than crude fiber (by difference)	0.3 - 0.5
	74.7 - 71.3

Calories—3.4 per gram 97 per ounce.

Claims of Manufacturer—This self-rising flour is specially intended for biscuit baking.

PFIZER GLUCONO-DELTA-LACTONE
(Purified Anhydride of Gluconic Acid)

Manufacturer—Charles Pfizer & Co., Inc., Brooklyn

Description—A purified anhydride of gluconic acid.

Manufacture—The glucono-delta-lactone is prepared by an oxidizing fermentation of dextrose by means of a bacterium which oxidizes the sugar to gluconic acid without any significant formation of other acids. The fermentation is carried out under aerobic conditions. The resulting gluconic acid liquor is concentrated under reduced pressure, cooled and seeded with glucono delta lactone crystals, and evaporation continued until a substantial crop of glucono-delta-lactone has crystallized out. The crystal crop is separated from the mother liquor by centrifugation, washed with cold water and dried by steam

heat. The dried crystals are packed in suitably lined barrels or drums.

Analysis (submitted by manufacturer) —

Delta glucono-delta lactone	per cent
Gluconic acid equivalent	not less than 99.5
	109.6
	Maximum limits of impurities
Residue on ignition	0.1
Gluconic acid anhydrous	trace
Insoluble in water	0.01
Sugars (as <i>d</i> glucose)	0.5
Heavy metals as lead (Pb)	0.002
Iron (Fe)	0.001
Oxalate (C_2O_4)	0.02
Calcium (Ca)	0.05
Sulphate (SO_4)	0.05

Alcohol solubility tests indicate the product to be a delta-lactone and not gamma-lactone.

Alcohol soluble substances are less than 1 per cent.

Sample with acetic anhydride and concentrated sulphuric acid forms crystals of tetra-acetyl gluconic acid monohydrate (melting point 114 C.).

Calories—3.5 per gram 99 per ounce. (Calculated from data in International Critical Tables 5:166.)

Claims of Manufacturer—An organic acid anhydride for use as an acidulant in foods such as bakery and fruit products, and baking powder. In baking, it gives a retarded evolution of carbon dioxide with baking soda.

HEINZ STRAINED SPINACH

(Already Cooked Without Salt or Sugar)

Manufacturer—H. J. Heinz Company, Pittsburgh

Description—Canned comminuted and strained cooked spinach retaining in high degree the mineral and vitamin contents of the natural product, no added sugar or salt, the coarser fibrous portion is removed.

Manufacture—The spinach used is grown specially for the Heinz Company, harvested, delivered promptly to the factory, trimmed, thoroughly spray washed and carefully inspected. No blanching process is used, to avoid loss of nutrient material. The clean spinach is drained, placed in a closed cooker the air of which is quickly expelled by steam, and given a light cooking under slight pressure in such a manner as to avoid any loss through leaching or the necessity for adjustment of the consistency of the final comminuted vegetable. The vegetable is removed from the cooker and discharged into a comminution machine, which cuts the vegetable and forces it through a metal plate with coarse perforations. It is then passed through a finishing machine, in which it is forced through a screen of fine perforation. A steam atmosphere surrounds the material during the comminution and sieving process to protect the vitamins and flavors. The coarse material that fails to pass through the fine screen is rejected. The vegetable pulp passing through the screen is collected in glass lined vacuum tanks. When a batch has accumulated, the tank is closed and subjected to a "high vacuum" with gentle agitation to remove dissolved or admixed air. It is filled into enamel lined cans, which are closed under "vacuum" and subjected to adequate heat processing.

Analysis (submitted by manufacturer) —

Moisture	per cent
Total solids	93.7
Ash	6.3
Sodium chloride (NaCl)	1.4
Fat (ether extract)	0.06
Protein (N \times 6.25)	0.5
Reducing sugars as invert before inversion	2.2
Reducing sugars as invert after inversion	None
Sucrose	None
Crude fiber	None
Carbohydrates other than crude fiber (by difference)	0.7
Calcium (Ca)	1.5
Phosphorus (P)	0.057
Iron (Fe)	0.038
	0.001

Calories—0.2 per gram 57 per ounce.

Vitamins—The method of preparation efficiently protects the natural vitamin values. The strained spinach is a rich source of vitamin A and a good source of B, C and G.

Claims of Manufacturer—For table use, but especially intended for infants, children and convalescents and for special smooth diets. Only warming is required for serving. The natural mineral and vitamin values are efficiently retained.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, FEBRUARY 25, 1933

THE EFFECTS OF EXERCISE

The evolution of a mechanized society, about which so much is heard at the present time, has brought about changes in the physiologic functions of the man of today as well as in his economic relationships. Hard physical work, once the lot of the majority of people, is gradually being relegated into the category of the less usual experiences of daily life. As a consequence the bodily conditions formerly resulting so largely from muscular work as a part of the customary routine of living are now being developed through voluntary exercise and athletics. It has been stated¹ that athletics consist of physical exercise plus more or less of emotional exercise, while work is likely to involve less and less of the emotions.

A modicum of muscular effort—of work—has always been regarded as wholesome to the healthy organism. There is a widespread belief that certain physiologic advantages and desirable bodily changes are attributable to physical exercises and training. How real are they, and what is their nature? An elaborate discussion of these questions has recently been presented by Steinhaus¹ of the Young Men's Christian Association College of Chicago. As he points out, increases in muscle size, strength and endurance are probably among the best recognized chronic effects of muscular exertion. One cannot proceed far in the consideration of the contractile tissues without being brought face to face with the problems of their blood supply, for through this the removal of waste and the replenishment of energy alone can be insured. The interrelationship between the skeletal muscles and the circulatory apparatus seems to have been recognized by the discoverer of the circulation of the blood. In 1628, Harvey wrote "The more muscular and powerful men are, the firmer their flesh, the stronger, thicker, denser and more fibrous their hearts, the thicker, closer and stronger are the auricles and arteries." Haldane once remarked that the circulation and respiration may be looked on

as the servants of the muscles. Today there are added factors that call for recognition: chemical changes in the blood, adjustments of the respiratory functions, involvements of the endocrine organs, and new coordinations in the nervous system. It has been stated that undoubtedly the greatest and most lasting changes induced by training in man and animal, namely, changes in behavior, take place in the nervous system.

If the thesis that exercise increases the capacity of the organism to perform work is accepted, it becomes interesting to consider the "interlocking division of responsibilities" for this general outcome. The physiologist Lindhard² recognizes improvements in strength, in endurance and in sureness of perfection of movement, and he attributes them in general to changes in the muscular system, respirocirculatory system and nervous system, respectively.

According to Steinhaus, increase in strength is no doubt primarily associated with the hypertrophy of muscle in which largely the sarcoplasm participates. Too little is known of the way in which chemical energy is transformed into mechanical energy in the muscle to speculate on how the chemical changes observed in muscle contribute to the increase of strength. Endurance, or the postponement of fatigue, is a measure of the organism's ability to balance catabolic with appropriate anabolic processes. Primarily this means a sufficient supply of oxygen and, secondarily, a food supply. The modern conception of the chemical details involved in muscle mechanics is sufficiently novel to warrant repetition here. Phosphocreatine, a recently recognized muscle component, is broken down and then resynthesized at the expense of a glycolytic process. Steinhaus postulated the following possible causes of fatigue: (1) Depletion of the phosphocreatine store, as by loss of one or both of its breakdown products. (2) Failure of the resynthesis process as the result of some limitation being set on the production of lactic acid, which most commonly is probably due to the accumulation of lactic acid and therefore to (3) inability to oxidize lactic acid promptly because of a shortage of oxygen. The lactic acid thus accumulated enters the circulation and causes (4) disturbances in carbon dioxide carrying power of the blood, in the respiratory center and in vasomotor regulation, which an increased circulation can only temporarily compensate. (5) Failure of the circulatory and respiratory system to meet these demands.

The various adaptations that facilitate the performance of more exercise and result from a period of "training" bring about increased return of venous blood by active muscles to the heart. This organ is filled more completely, an outcome which, in accord with the "law of the heart," induces stronger systoles. Oft repeated, as Steinhaus points out, this leads to cardiac hypertrophy with corresponding greater stroke volume,

¹ Steinhaus, A. H. Chronic Effects of Exercise, *Physiol Rev* 13: 103 (Jan) 1933.

² Lindhard, J. *Ergebn d Physiol* 33: 337 1931.

resting minute volume, and slower pulse rate. The faster circulation of the blood results in fragmentation of older corpuscles, both red and white, and a consequent stimulation of the corpuscle-producing tissues. The blood corpuscles are thus "trimmed" for greater service. A greater resting minute volume, augmented by the return flow as soon as exercise begins, carries much greater supplies of oxygen to the active tissues, thus providing for the disposition of lactic acid at its source and preventing its entering the circulation in quantities large enough to disturb the equilibrium elsewhere. To bring about the many cardiac, vasomotor and respiratory adjustments a great burden is placed on the nervous system, particularly the autonomic portions. Undoubtedly during exercise these adjustments are mainly due to sympathetic activity. A well ordered program of athletics should aim to elicit gradually these many beneficial reactions without forcing them to the point of detrimental overstrain.

COBALT AND NUTRITION

Effort expended with one objective in view often proves important in a different and frequently unforeseen direction. The possibility for such a circumstance is greater, the more complex the system to which the initial adjustment is applied. In the history of the development of biochemistry, many cases in point have arisen. An instance in which this principle is generally applicable is the possible clinical significance of the data derived from the many recent serious investigations of nutritional anemia. These studies have been largely on experimental animals, whether nutritional anemia in animals has a counterpart in human anemias is a question that has not been definitely answered. However, disappointing as it may seem that the results from experimental anemia are difficult to translate into clinical experience, they have served the unsought purpose of stimulating interest in several unusual chemical elements the nutritional significance of which has not heretofore been fully appreciated. Among these is cobalt.

The present revival of interest in cobalt dates from the observation of the Walters¹ that administration of this metal produces a polycythemia in experimental animals. The nature of this response has been studied further by Orten, Underhill, Mugrage and Lewis.² It appears that, with a ration of fluid milk to which iron and copper have been added, a polycythemia is produced when cobalt is added. This is characterized by an increase in both erythrocytes and pigment, it does not take place, however, in the absence of copper. Furthermore, when cobalt is added to a milk-iron-copper diet, the total volume of the blood is increased, this change being conditioned by the augmented cell volume rather

than by a variation in amount of plasma. It had been shown previously¹ that cobalt is toxic in small daily doses. The Colorado investigators have demonstrated that the retardation of growth and the toxicity of cobalt are somewhat alleviated by the inclusion of manganese in the experimental ration. Furthermore, the high concentration of hemoglobin, the augmented number of erythrocytes and the increased blood volume produced by cobalt were more steadily maintained throughout the experimental period when manganese was present.

The daily quantity of cobalt required to bring about these striking blood responses in animals is extremely small, from 0.1 to 0.5 mg. In attempting to discover the mechanism whereby the typical reaction is produced, it is of some importance to know the organs and tissues in which the cobalt is localized after its administration. In a recent contribution of Stare and Elvehjem³ it is pointed out that cobalt, if it occurs in biologic substances, does so in extremely small amounts, for, within the limits of accuracy of the analytic method employed, they could not demonstrate any cobalt in the entire body of albino rats maintained on a diet of milk to which iron, copper and manganese were added. When cobalt was added to this ration minute amounts were detected, roughly proportional to the quantities fed. When cobalt is fed it appears to become localized in the liver, pancreas and spleen, though the absolute amounts retained are extremely small.

These observations on cobalt, an element which as recently as five years ago was doubtless looked on as a biochemical novelty, emphasize again the importance of what Mendel has referred to as the "little things" in the diet. It has been shown³ that 0.04 mg of cobalt in the entire body of an albino rat weighing 150 Gm is sufficient to produce a striking polycythemia. Observations such as these have served to alter the entire point of view in one branch of the science of nutrition. Recurring demonstrations of the biochemical significance of mere traces of commonly disregarded substances serve as well as do metaphyses to illustrate how exquisitely the organism is adjusted to its environment.

PROGRESS OF MEDICINAL LIQUOR LEGISLATION

The medicinal liquor bill sponsored by the American Medical Association was reported to the House of Representatives by the Committee on the Judiciary, February 15, with a recommendation that it pass.¹ The bill may now come before the House for action at any time. If it passes the House, however, as it seems likely to do, it must still run the gantlet of the Senate.

This bill, if enacted, will do away with the quantitative limits on the medical use of alcohol and on the

¹ Walters, Clara and Walter, Karl. *Klin. Wchnschr.* 5: 313 (Feb. 12) 1926.
² Orten, J. M., Underhill, F. M., Mugrage, E. R. and Lewis, J. C. *J. R. I. Chem.* 36: 11 (April) 1930. 39: 4 (Jan.) 1933.

³ Stare, F. J. and Elvehjem, C. A. *J. Biol. Chem.* 99: 473 (Jan.) 1934.
¹ H. R. 14595. H. R. Report No. 2044.

issue of prescriptions, now arbitrarily fixed by the National Prohibition Act. It will substitute for them the simple formula, "no more liquor shall be prescribed to any person than is necessary to supply his medical needs." To safeguard against the possible abuse of the right to prescribe liquor, the bill provides that the Attorney General and the Secretary of the Treasury jointly may promulgate regulations with reference to the quantities of liquor that may be prescribed for medicinal purposes. The regulations formulated in this way can be based on medical evidence and on the experience of the officers charged with the enforcement of the law. If the regulations prove to be unnecessarily severe or fail to prevent the diversion of medicinal liquor to beverage purposes, they can easily be modified from time to time in the light of experience. Thus regulations may finally be developed that permit the rational use of liquor for medical purposes, with as few obstacles as are consistent with the effective enforcement of the provisions of the law forbidding the manufacture and sale of liquor as a beverage.

The disclosure of the nature of the illness from which a patient is suffering, in records filed with the Bureau of Industrial Alcohol, is not now required. A legal prohibition of demands for such disclosures is proposed by this bill, however, to prevent future demands for disclosures of this character. The bill provides that no physician shall be called on to file any statement of his patient's ailment in the Department of Justice, the Department of the Treasury or any other office of the government, or to keep his records in a way that may lead to the disclosure of any such ailment. A physician is to be required to make only such disclosures as are called for in court or in the course of proceedings looking toward the revocation of a permit issued under the National Prohibition Act or as are necessary to enable an officer charged with the execution and enforcement of the act to perform his duty.

The third change proposed by this bill is the abolition of the cumbersome and costly official prescription blanks now in use. Physicians are to use their own prescription blanks. To prevent prescribing by unauthorized persons, the Treasury Department is to issue stamps, free of cost, to physicians holding permits to prescribe, and the physician is to affix such a stamp to each prescription for liquor and to cancel the stamp thus affixed. A prescription for liquor, without a canceled stamp, is to be void. The use of stamps, instead of the present official prescription blanks, will save the government considerably more than \$100,000 a year and will probably save the physicians of the country time, trouble and annoyance that now cost them several times that amount.

The bill as it now stands represents, it is believed, the best that can be done toward removing the grievances of physicians against present methods. No opposition to the bill has been heard from any quarter. The

absence of opposition, however, is not in itself sufficient to insure the enactment of the bill, there must be an affirmative demand for enactment. If the medical profession of the country desires that this bill be enacted during the current session of Congress, individual physicians and organized groups must urge their Senators to vote for it. Even if local laws in any state are such as prevent prescribing of alcoholic liquors, the medical profession of the state should nevertheless voice its demand for its enactment in the interest of the patients of their confreres in other states.

Only a few days remain before March 4, when the present Congress expires. What is done must be done quickly. Telegrams, or letters by air mail, special delivery or air mail plus special delivery should therefore be used in forwarding requests for the enactment of this legislation.

Current Comment

ADVERTISING BEGINS TO CLEAN HOUSE

Announcement is made in a recent issue of *Printers' Ink* of the establishment, within the advertising industry itself, of a permanent review committee, which is to operate as a court of appeals. The committee is an outgrowth of a movement begun in May, 1932, to develop a code to control advertising practices in order to prevent a continuing trend toward the discrediting of all advertising. The plans of the permanent committee, which is at this time headed by Ralph Starr Butler, representing the Association of National Advertisers, and himself advertising manager for General Foods Corporation, involve the development of a code and of methods for handling violations of the code. Already the code drawn up includes seven points that tend to discredit advertising. These are

- 1 False statements or misleading exaggerations
- 2 Indirect misrepresentation of a product or service through distortion of details, either editorially or pictorially
- 3 Statements or suggestions offensive to public decency
- 4 Statements which tend to undermine an industry by attributing to its products, generally, faults and weaknesses true only of a few
- 5 Price claims that are misleading
- 6 Pseudoscientific advertising, including claims insufficiently supported by accepted authority or that distort the true meaning or application of a statement made by professional or scientific authority
- 7 Testimonials which do not reflect the real choice of a competent witness

It is interesting to find that advertising has at last begun to realize the menace inherent in many current advertising practices, and that it is doing the best thing possible under the circumstances, namely, cleaning its own house. It has been the pride of organized medicine that it invariably cleans its own house. It is to be hoped that this movement in the field of advertising, begun under such excellent auspices, will lead to much needed reforms.

**COMBINED LOCAL AND SYSTEMIC
SPECIFIC THERAPY**

The difficulties of controlling "carrier" conditions have recently been emphasized in a statement by Neufeld and Ettinger-Tulczynska¹ of the Robert Koch Institute, Berlin. The German investigators found that they could produce carrier conditions in mice and guinea-pigs by the nasal instillation of type pneumococci. The majority of the animals did not show signs of systemic infection but became month-long carriers of nasal pneumococci. Contrary to expectations the investigators found that previous active or passive immunization against the same types of pneumococci, although effective in preventing the occasional generalized infection, was without demonstrable prophylactic effects against the development and duration of the carrier states. The carrier condition in itself never led to the development of a sufficient degree of systemic immunity to protect against subsequent intraperitoneal injection with as little as 2 minimum lethal doses of homologous type pneumococci. Consistent with these results, the investigators found that intraperitoneal injections of high titer antipneumococcic serum were not effective in clearing up the carrier condition. Repeated nasal washings with the same antiserum were also not effective, even though the washings were repeated at twelve hour intervals for more than a week. A combination of a single intraperitoneal high-titer antiserum injection with two local antiserum washings, however, was effective. In most cases the combined local and systemic specific therapy led to a complete and permanent specific sterility of the nasal mucosa.

MEDICAL INSPECTION OF ALIENS

During the last fiscal year, medical officers of the U S Public Health Service examined 373,034 alien passengers in order to detect physical or mental conditions as provided for by the immigration laws. In summaries of these examinations, published in the annual report of the Public Health Service,¹ the number and character of the more serious conditions found in these aliens are tabulated. It appears that the medical examiners at various United States ports diagnosed 96 cases of idiocy, imbecility and feeble-mindedness among the alien passengers, 40 cases of epilepsy, 85 of insanity, 118 of psychopathic inferiority, 27 of chronic alcoholism, 119 of tuberculosis, 346 of trachoma, 273 of syphilis, 394 of gonorrhea, 48 of favus, 31 of soft chancre, and 42 cases of other dangerous or loathsome contagious diseases, a total of 1,619 whose physical condition made their exclusion from the United States mandatory. Should this heterogeneous crowd of idiots, imbeciles, epileptics, alcoholic addicts and others have been permitted to enter the United States, it would be impossible to estimate the amount of crime, misery and disease for which they would be responsible. There are now in the asylums, hospitals and jails of the United States far too many inmates whose difficulties could be traced to disease conditions that existed prior to their entry into the country.

¹ Neufeld J. E. and Ettinger-Tulczynska R. Z. *Arch. f. Internat. Med.* 1934, 44, 152.
² Annual Report U S P H S 1933, p. 10.

Association News**MEDICAL BROADCAST FOR THE WEEK****American Medical Association Health Talks**

The American Medical Association broadcasts on Monday and Wednesday from 9 45 to 9 50 a m (central standard time) over Station WBBM (770 kilocycles, or 389.4 meters).

The subjects for the week are as follows:

February 27 Temper Tantrums.

March 1 Athlete's Foot.

There is also a fifteen minute talk sponsored by the Association on Saturday morning from 9 45 to 10 o'clock over Station WBBM.

March 4 No broadcast.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARIZONA

Bills Introduced—S 94 proposes to authorize the board of medical examiners to license persons to practice chiroprody, which the bill defines as the examination, diagnosis or treatment medically, mechanically or surgically of the ailments of the human foot. However, such licentiates are not to have the right to amputate the toes or joints thereof, or any portion of the foot, or to sever any tendon, or to use any anesthetic other than local. H 165 proposes that the nursing services to be rendered in public welfare institutions be rendered only by registered nurses.

ARKANSAS

Bill Introduced—H 410 proposes a new workmen's compensation act. Occupational diseases are not to be compensable. Employers must provide such medical treatment as their injured employees may require during sixty days after the injury or for such time in excess thereof as the state industrial commission shall order. Employees are not to be allowed to select their own physicians.

CALIFORNIA

Study of the Common Cold—The University of California Medical School, San Francisco, is conducting a study of the factors other than infectious agents that may be concerned in the production of the common cold. In a specially constructed room which accommodates five persons, temperature and humidity can be varied to reproduce extreme conditions or can be kept constant for an indefinite period. Susceptible persons are kept in the room for an incubation period of four or five days, when some one who is suffering with a fresh cold in the head is introduced. Such factors as fatigue and over-eating have been removed. Drs William J Kerr, professor of medicine, and John B Lagen, research assistant are conducting the study.

Bills Introduced—S 953 proposes to create a state board of regulation of hospital associations which is to be authorized to license persons, associations or corporations to engage in the business of issuing contracts for furnishing medical, hospital, nursing or dental services. Exempted from the provisions of the bill are certain types of fraternal societies offering these services to its members. A 1740 proposes a self-styled "chiropractic institutional act." It seeks to require the state board of prison directors to appoint to every institution under its jurisdiction one or more chiropractors. The bill also proposes that chiropractors be given the right to practice within the confines of every hospital or other institution receiving workmen's compensation from the state. A 1739 to amend the chiropractors to render the medical treatment which employers are required to supply to injured employees. A 1813 proposes to abolish the department of professional and vocational standards and to refer to the board of medical examiners all the

January 9 Dr Frederick J Farnell, chairman of the public welfare commission of Rhode Island, gave an address at the hospital, January 30, on "The Autonomic Nervous System and Its Disorders"

Society News—Dr Daniel F Jones, Boston, addressed the Providence Medical Association, January 2, on "Diagnosis and Treatment of Carcinoma of the Colon and Rectum" The society was addressed, February 6, by Drs Frank S Hale and Marco A M Castallo, Providence, on "Voluntary Sex Determination" and "Treatment of Endocervicitis," respectively—Dr Herman A Lawson, Providence, discussed local manifestations of some general systemic diseases before the Rhode Island Ophthalmological and Otological Society, Dec 8, 1932

SOUTH DAKOTA

Bill Introduced—H 153, to amend the medical practice act, proposes to license without examination any physician who is a graduate of a three or four year course in an approved medical college and who has had ten years or more of licensed practice

TEXAS

Bills Introduced—S 212 proposes to repeal the laws regulating the possession and distribution of narcotic drugs and to enact the uniform narcotic drug act H 434 proposes to create a board of chiropractic examiners and to regulate the practice of chiropractic Chiropractic is defined as the "Science of health in anatomical relation, and disease in or from anatomical disrelation The Science of Chiropractic locates and removes pressure on nerves and its effects as the cause of mental and physical disease, disorder or deformity without the use of drugs or operative surgery" Licentiatees are to be permitted to practice chiropractic as thus defined, to have the right to sign death certificates and, apparently, to practice within the confines of public hospitals

Graduate Meeting in San Antonio—The Fifth District Medical Association held its first series of graduate lectures in San Antonio, January 10-12 General sessions were held each morning and afternoon and section meetings for various specialties were held at luncheons It is planned to make this type of meeting an annual affair, with special emphasis on the participation of Mexican physicians Among the lecturers were

Dr William F Braasch, Rochester, Minn., Treatment of Infections of the Urinary Tract
Dr Francisco P Miranda, Mexico City, Cardiac Insufficiency
Dr William Thornwall Davis, Washington, D C, Modern Conception and Treatment of Convergent Squint
Dr Russell L Haden, Cleveland, Chronic Arthritis
Drs Francisco R Vargas and Luis B Soto, Mexico City, Present State of the Mexican Investigation of Typhus Fever
Dr Gabriel Tucker, Philadelphia, Cancer of the Larynx
Dr Rudolph Matas, New Orleans, Blood Vessel Surgery
Dr Leon Bloch, Chicago, Clinical Observations on Ulcer and Discussion of Treatment

Dr Edward H Cary, Dallas, President of the American Medical Association, addressed an evening session on medical economics Dr Sam E Thompson, Kerrville, is president of the fifth district association

WASHINGTON

Bills Introduced—S 113 proposes to repeal chapter 36 Session Laws of 1919, regulating the practice of drugless therapeutics S 200, to amend the workmen's compensation act, proposes to permit osteopaths, chiropractors and other cult practitioners to render the medical treatment required under the act to be furnished injured employees Substitute S 13 proposes to repeal the laws regulating the possession and distribution of narcotic drugs and to enact the uniform narcotic drug act S 201 proposes to create a board of physio-medical examiners and to regulate the practice of physio-medicine and surgery Licentiatees must confine themselves to the principles and philosophy of physio-medicine, which, the bill states, is "that system of medical practice which uses only organic materials and substances or derivatives therefrom for internal administration according to the philosophy of recognized physio-medical colleges" H 265, to amend the optometry practice act proposes (1) to define the practice of optometry as "the employment of any means or methods other than the use of drugs in the diagnosis of any optical deficiency or deformity, visual or muscular anomaly of the human eye, or fitting of glasses, or the prescription of lenses, prisms, or ocular treatment for the correction or relief of the same" and (2) to prohibit licentiatees from using the title "doctor," or any abbreviation thereof without the qualification "optometrist" or the abbreviation O D or "Opt D"

WEST VIRGINIA

Bill Introduced—H 248 proposes to require applicants for marriage licenses to present certificates from licensed physicians stating that the parties to the proposed marriages are free from venereal diseases

WISCONSIN

Society News—Drs Andre Crotti, Columbus, Ohio, and Harry E Mock, Chicago, addressed the Fond du Lac County Medical Society, Fond du Lac, Dec 14, 1932, on "Diseases of the Thyroid and Thymus Glands" and "Treatment of Skull Fractures and Concomitant Injuries," respectively—Dr Matthew N Federspiel, Milwaukee, addressed a joint meeting of the Manitowoc County medical and dental societies in December, on "Diseases and Deformities of the Mouth, Nose and Face"—Drs Samuel J Pearlman and Samuel Salinger, Chicago, presented papers before the Racine County Medical Society, Racine, Dec 15, 1932, on diagnosis of types of nris-toiditis and emergencies in conditions of the ear, nose and throat, respectively

Bills Introduced—A 247 authorizes either spouse to sue for divorce when the other spouse has been an inmate of a hospital for the insane for ten years S 139, to amend the provisions of the medical practice act limiting licenses to practice medicine and surgery or osteopathy and surgery to United States citizens or to persons who have first citizenship papers, proposes that any applicant who by reason of his nationality is not eligible to citizenship and who is a graduate of a reputable professional college in this country prior to the taking effect of this section may be licensed if at least one of his parents shall have been a native of the state A 275 proposes to constitute the state health officer, the secretary of the board of medical examiners and the attorney general a state medical grievance committee to investigate, hear and pass on professional practices by persons licensed to practice medicine and surgery S 169, to amend the workmen's compensation act, proposes to permit injured employees to choose their attending physicians and the hospitals in which they are to be treated If employees fail to exercise their choice of physicians or hospitals, the county medical society of the county in which they are injured is to select the attending physicians from its membership The bill proposes to make it the duty of employers to notify the county medical society immediately after every industrial injury S 172, to amend the medical practice act, proposes to eliminate that provision which exempts from the operation of the act "the practice of Christian Science, or any person who administers to or treats the sick or suffering by mental or spiritual means" The bill proposes, however, that the act shall not be construed to interfere with "consolation or mental or physical benefit gained by religious service or prayer by any person belonging to any religious organization" Any person selecting such treatment is not to be compelled to submit to any medical treatment except in the case of infectious disease or where he is in imminent danger of loss of life Persons administering religious consolation to the sick are not to derive any pecuniary benefit from their practices

WYOMING

Bills Introduced—S 112, to amend the workmen's compensation act, proposes that an employee claiming compensation for an industrial hernia must prove that the hernia is of recent origin, that its appearance was accompanied by pain, that it was immediately preceded by some accidental strain suffered in the course of the employment, and that it did not exist prior to the date of the alleged injury H 272, to amend the medical practice act, proposes that the board of medical examiners consist of "four regularly licensed physicians and one regularly licensed osteopathic physician"

GENERAL

Publication for Health Officers—The *Health Officers' World* made its initial appearance with the January issue It will be published four times a year as the official journal of the International Society of Medical Health Officers Dr John P Koehler, commissioner of health of Milwaukee, is the editor The new journal replaces the *Medical Health Officer* which was published in mimeographed form

Jacobi Fellowship Offered—The Women's Medical Association of New York City offers the Mary Putnam Jacobi Fellowship of \$1000 for one year to women physicians Applications for 1933-1934 should be sent before April 1 to Dr Annie S Daniel, 105 East Fifteenth Street, New York They must be accompanied by statements as to health, educational qualifications and the problem proposed for investigation

tion Two reports are required, one at the end of six months and the second at the end of the year The fellowship is open to any woman graduate of an approved medical school

Officers of Orthopedic Societies—At the first annual meeting of the American Academy of Orthopedic Surgeons in Chicago, January 12, the following officers were elected Drs Willis C Campbell, Memphis, Tenn, president, Philip D Wilson, Boston, vice president, Philip Lewin, Chicago, secretary, and Eugene B Mumford, Indianapolis, treasurer Officers of the Clinical Orthopedic Society elected at its meeting held at the same time are Dr Rexford Diveley, Kansas City, Mo, president, Dr Mumford, vice president, and Dr James E M Thomson, Lincoln, Neb, secretary The next meeting of the Clinical Orthopedic Society will be held in St. Paul, Minneapolis and Rochester, Minn

Dr Henry F Osborn Resigns—Henry Fairfield Osborn, Ph.D., since 1910 research professor of zoology, Columbia University, New York, retired as president of the American Museum of Natural History, January 10 after serving twenty-five years in that capacity Mr F Trubee Davison, assistant secretary of war in charge of aeronautics, Washington, D C, was elected to succeed Professor Osborn, who has been chosen honorary president Professor Osborn's extensive experience has included the teaching of comparative anatomy, biology and zoology at Princeton and Columbia universities At one time he was dean of the faculty of pure science at Columbia He is the author of a large number of books and articles, many of which deal with organic evolution

Southeastern Surgeons to Meet—The Southeastern Surgical Congress will hold its fourth annual assembly at the Atlanta Biltmore Hotel, Atlanta, Ga, March 6-8 Among speakers announced on a preliminary program are

Dr George W Crile Cleveland Peptic Ulcer
Dr Chevalier Jackson Philadelphia Diverticula of the Esophagus and Hypopharynx
Dr William E Lower Cleveland Functions of the Testes
Dr Hubert A Royster Raleigh Pathology of Appendicitis
Dr Edward W A Ochsner New Orleans Relative Value of Sclerosing Agents in the Treatment of Varicose Veins
Dr Dean Lewis Baltimore President Elect American Medical Association Muscle Nerve and Blood Vessel Injuries of the Extremities
Dr Carl A Hedblom Chicago Diagnosis and Treatment of Tumors of the Thorax
Dr William Wayne Babcock Philadelphia The Vaginal Approach to the Peritoneum
Dr Curtice Rosser Dallas Texas Problems Confronting the Proctologist
Dr Irvin Abell Louisville Ky Tumors of the Breast

Medical Bills in Congress—*Changes in Status* H R 7518 has passed both the House and the Senate, empowering the President, under such regulations as he may prescribe, to authorize the board of health of the Canal Zone to issue and revoke licenses to practice the healing art H R 12843 has been favorably reported to the House, without amendment changing the name of the retail liquor dealers stamp tax in the case of retail drug stores or pharmacies (Report No 2038) H R 14395 relating to the prescribing of medicinal liquor has been favorably reported to the House without amendment (Report No 2044) The House Committee on Rules has reported a special rule on the bill which assures early consideration of it *Bills Introduced* S 5624 introduced by Senator Smoot Utah provides that hereafter no disability allowance compensation or hospitalization shall be paid or granted by the Veterans Administration to any World War veteran who did not actually suffer an injury or contract a disease in line of duty as a result of, and directly attributable to service between April 6 1917 and July 2, 1921 H R 14655, introduced by Representative Lankford Virginia provides that no pension bounty disability or allowance save and except insurance benefits on which adequate premiums have been paid and hospitalization under existing law shall be paid or allowed to any veteran of any war for an injury or disease not of service origin except a veteran who is permanently and totally disabled or a veteran who has attained the age of 65 years and whose gross income is less than \$3000 The bill does not apply to dependents of deceased veterans

CORRECTION

Nomination of Surgeon General of Navy—THE JOURNAL of February 11 page 434 stated that Capt. Charles M Oman had been appointed surgeon general of the navy The Senate has not thus far confirmed the appointment and the indications are that his nomination will not be confirmed at the present session of Congress because the Senate is refusing to permit nominations of the outgoing administration to be acted on Capt John B Dennis a assistant chief of the bureau of medicine and surgery navy department is acting in certain matters while Secretary of the Navy Adams is performing official duties ordinarily performed by the surgeon general

Foreign Letters

LONDON

(From Our Regular Correspondent)

Jan 28, 1933

Roentgen Rays in Diagnosis of Placenta Praevia

At the Edinburgh Obstetrical Society a new use was described for the roentgen rays—their assistance in the diagnosis of placenta praevia—by Prof Munro Kerr and Dr W G Mackay Introducing the subject, Kerr referred to the high percentage of maternal deaths in placenta praevia and the importance of adopting the method suitable to the individual case if this mortality was to be reduced There was difficulty not only in diagnosing the variety of placenta praevia present but also in differentiating between placenta praevia and accidental hemorrhage Therefore any method that would not only differentiate placenta praevia from accidental hemorrhage but also show which variety was present was valuable He then called on Dr Mackay to demonstrate a method which they had investigated together

Mackay first discussed previous investigations that had been made in order to locate the position of the placenta in the uterus The only one at all satisfactory was that of Manees, Miller and Holly, who injected strontium iodide into the amniotic sac The placenta, which projected into the cavity, produced a defect at the edge of the shadow when the uterus was pictured from the correct angle Kerr and Mackay tried this method in ten cases but gave it up, as the fetus died in three cases They substituted a derivative of iopax, which is nontoxic and nonirritant, for strontium iodide They found that 20 cc produced a suitable shadow In ten cases in which this procedure was followed, no untoward effects occurred to either the fetus or the mother, though the injection had a great tendency to terminate the pregnancy It was necessary to take at least two roentgenograms, one anteroposterior and the other lateral so as to be sure of getting a full view of the indentation made by the placenta A number of roentgenograms were thrown on the screen demonstrating the position of the placenta not only in normal cases but also in cases of placenta praevia In the latter they showed exactly how much of the placenta was in the lower segment and covered the os Various errors that had to be avoided, such as those due to gas in the bowel and to the presence of two sacs, were described It was also shown how roentgen rays could in certain cases enable the sex of the child to be diagnosed and show whether any coils of cord were round the child's neck

Sir Percy Sargent

The death at the age of 59 from pneumonia of Sir Percy Sargent has removed the leading neurologic surgeon in this country Educated at St Thomas's Hospital, he obtained in 1895 the usual junior surgical appointments and then came under the influence of Sir Charles Ballance and acquired his bent for neurologic surgery from him At this time Sir Victor Horsley the pioneer of neurologic surgery in England, was developing the surgery of the brain at the National Hospital (the center of British neurology) Sargent was appointed his assistant and turned his great manipulative skill to account in the delicate operations on the nervous system The speed and ease with which he performed difficult operations were a revelation He could deftly remove a tumor from the spinal cord in twenty minutes He was the pupil and direct successor of Horsley with whom he worked for eight years During the war he did great work in the treatment of injuries of the nervous system and as a result of this experience produced his monographs on Injuries of the Peripheral Nerves and the Spinal Cord which were published by the Medical Research

Council He was too busy in practice to write much, but what he wrote was always excellent His earliest important paper was written in conjunction with Professor Dudgeon on the Bacteriology of Peritonitis Others were "Peritonitis" and "Diseases of the Appendix" in Choyce's System of Surgery, "The Treatment of Penetrating Wounds of the Skull" (with Gordon Holmes) in the *British Journal of Surgery*, and "Closure of Cavities in Bone," in the *Journal of the Royal Army Medical Corps* Though he attained such eminence as a neurologic surgeon, he was essentially a general surgeon, and, not wishing to pose as a specialist, he avoided publishing the wealth of material in his special branch which he accumulated, but he had in preparation at the time of his death a book on neurologic surgery

The Falling Birth Rate

The registrar general's provisional vital statistics of England and Wales for 1932 have just been published For the fourth year in succession the birth rate is the lowest on record, being 1 per thousand below that of 1929 and 1930 and 0.5 below that of 1931 The death rate is 0.3 below that for 1931 The infant mortality rate is 1 per thousand below that for 1931 The only year showing a lower rate is 1930 In 1928 the rate was the same, namely, 65 The actual figures for 1932 are

	Rate per 1,000 Population	Deaths Under One Year per 1,000
	Live Births	Deaths (Crude Rate) Registered Live Births
London (Administrative County)	14.3	66
England and Wales	15.3	65
118 County Boroughs and great towns including London	15.4	68
126 smaller towns with estimated resi- dent populations of from 25,000 to 50,000 at 1931 Census	15.4	57

The Medical Profession and the Financial Depression

Physicians generally and specialists in particular are suffering from the most severe slump known to the medical profession It of course is the result of the unprecedented financial depression of the country, which forces even those who were rich to practice severe economy and in many cases avoid consulting physicians if possible Operations that are absolutely necessary are performed as heretofore, but those which are not are postponed until better times Many patients who in other days would have paid a surgeon's fee without demur and had operations performed in a nursing home now find this beyond their means and go to swell the crowds at the hospitals Another result is that in many cases fees have had to be reduced Those who suffer least are the panel physicians, whose income is guaranteed by the state It is true that they have suffered a small cut, but it is trivial compared to the losses of those who rely on private practice

The Influenza Epidemic

An epidemic of influenza is common at the beginning of the year One is now prevalent all over the country The disease is of mild type but is so general as to cause some interference with business So many nurses are suffering that the outpatient department of the North Staffordshire Infirmary has had to be closed In many parts of the country, schools are closed In Yorkshire villages the absence lists of children from school have reached 75 per cent At Swansea so many whole families are laid up that it has become a practice to give physicians the key of the house so that they can let themselves in The deaths from influenza registered in the 118 large cities in England and Wales for the week ended January 21 were 1,589, against 120, 303, 681 and 1,041 in the preceding four weeks As the last figure shows the disease

was prevalent in the last week of 1932 and then declined, to be followed by the present increase A general decline in the disease is soon to be expected if experience of earlier epidemics is a guide

Dr Malcolm Evan MacGregor

Dr Malcolm Evan MacGregor, who was in charge of the Wellcome Entomological Field Laboratories, has died at the age of 43 Educated at Trinity College, Cambridge, and later a Carnegie fellow at Harvard, he came under the influence of that great medical entomologist Dr L. O. Howard He was appointed university research student in medical entomology at Cambridge He came into prominence in the war, when in charge of the mobile field laboratories which investigated insect carriers of disease in East Africa He studied mosquitoes with a view to solving some of the fundamental problems underlying their mode of life, feeding, hibernation and reproduction He showed that the diverticulum of the esophagus is a reservoir into which the mosquito can direct fluids unsuitable for the stomach He studied the effect of ultraviolet rays on the larvae and the reactions of the waters in which they occurred and he endeavored to show that the larvae of *Culex* and *Anopheles* live in waters of different but particular pH His research was in full operation at the time of his death He wrote numerous scientific papers and a handbook for anti-malaria workers, entitled "Mosquito Surveys"

PARIS

(From Our Regular Correspondent)

Jan 11, 1933

Charges of Fraud in Conduct of Examination for Internships

The alleged fraud connected with the competitive examination for internships continues to be the chief topic of medical discussion and to give rise to numerous articles by notable people in the daily press A thorough inquiry has revealed that of 800 examination papers which, according to the regulations, should have been anonymous, 232 bore marks evidently designed to identify the authors Only eighteen of the papers of the successful candidates bore such marks As regards the 214 others, the attempt to commit fraud brought no results Of the twelve interns mentioned who read to the judges the unsigned examination papers, two confessed having made some "ameliorations" in the text of certain of the candidates, but, they aver, only to correct mere slips of the pen, which would not have sufficed to make excellent papers out of those that were bad As already announced, one of these readers committed suicide It has been emphasized that in making a selection of the eighty candidates from among 800, the second half of the list contains candidates whose rank in scholarship is almost identical, and that makes it necessary to take into account minute details (half points and quarter points), in order to differentiate between them It is here that fraud may give an advantage to candidates who find accomplices among the readers of the examination papers At present, the director of the Assistance publique a Paris and the minister of public health, who have to assume the responsibility of deciding the matter, are hesitating between two solutions (1) the total annulment of the recent examination or (2) the rejection of the candidates whose papers bore identifying marks contrary to the regulations The 720 candidates who failed demand a second examination, whereas the eighty students who have been accepted do not wish to submit to a second examination It cannot be denied that chance plays a considerable part in competitive examinations One cannot determine the real worth of a man by the manner in which he treats a subject selected at random There are young persons who can write readily on any subject, and for them a competitive examination is an easy task There are

others, with less retentive memories, to whom an examination is repugnant, and yet later they might become just as efficient clinicians as the former

The Treatment of Experimental Syphilis

Some hope is based on apparatus using short hertzian waves to cure certain infectious diseases by raising the temperature of the body. The experiments with the gonococcus have given only mediocre results. In dementia paralytica and tabes, the results are not better than those secured by means of malaria therapy. Research of the same nature on experimental syphilis in the rabbit and then on syphilis in man was undertaken by Richet and Dublineau. They based the treatment on the extreme fragility of the spirochete toward heat, since a temperature of 41 C. for thirty minutes kills the spirochete, or at least suppresses its virulence. If the rectal temperature of the rabbit is raised to 42.4 C., for from seventeen to twenty-two minutes, syphilis will sometimes be cured, if at the same time one injects into it an infracurative dose of neoarsphenamine, one will always effect a cure (biologic recovery). The speakers referred to clinical results obtained by the use of combined chemotherapy and pyretotherapy. In thirty-eight patients a clinical cure was confirmed, and in thirty-five cases a Wassermann test was found to be negative.

Convalescent Serum in Prevention of Measles

Lereboullet and J. Vanier reported, before the Société de pédiatrie, a small outbreak of measles in a ward in the Hôpital des enfants-assistés. They announced the results of injections of the serum of measles convalescents in all the children who were infected as the result of three cases that developed in the department. The injection of serum of measles patients did not prevent measles from developing, but there was evidence of attenuation, nine of the children thus injected having presented a benign type of measles. The only child who was not injected developed a grave type of measles with bronchial pneumonia and otitis which ended, however, in recovery. When the outbreak of measles was over, the ward was reopened to patients who had not had measles serum injected. Three new cases developed at once, one of which proved fatal, while another was severe. From then on, serotherapy was applied to all the children admitted to the ward, and of forty-one entrants not one developed measles.

Protest Against Compulsory Notification of Tuberculosis

The bill filed by Justin Godard, former minister of health which would make the notification of tuberculosis compulsory for the physician, has raised the same protests that were always raised in the Academy of Medicine whenever this question was discussed. Mr. Auguste Lumière, who supports the thesis that tuberculosis is rarely contagious but is hereditary or inoculated by cow's milk, is the leader of this movement. In an article that has created considerable stir, he seeks to prove that the number of tuberculous persons is countless and that it would require an army of physicians and an enormous expenditure of money to detect them all. Even though that result were accomplished there is no feasible plan of isolating all tuberculous patients. They would refuse to be separated from their family. Although the number of beds reserved for tuberculous patients in the sanatoriums and the hospitals has been considerably increased it would be impossible to admit them all. Finally if the tuberculous person is prohibited from working the support of his family will necessitate the expenditure of enormous sums that the Budget of France is absolutely unable to furnish. Physicians would refuse to make a notification the consequences of which would bring a catastrophe to their clients. That is the opinion of the Fédération des syndicats médicaux de France, expressed on several occasions. The physician demands

that his initiative shall not be controlled by an absolute law but that he shall be allowed to judge of the cases in which the presence of a tuberculous person in his family constitutes a real danger for his entourage. Under these conditions, it would appear that Mr. Godard's bill is likely to encounter serious opposition in parliament.

BERLIN

(From Our Regular Correspondent)

Jan 9, 1933

Fee Splitting

In the *Deutsches Aerzteblatt*, the official organ of the Deutscher Aerztevereinsbund, the leading professional organization, the editor, Dr. Vollmann, presents the views on dichotomy that prevail in various countries. In France, vigorous protests against the practice are being raised, in Belgium, dichotomy is the accepted custom, although the demand is made that the patient be informed of the splitting of the fee, in many countries it is more or less an objectionable custom secretly practiced, the English medical profession rejects it in toto, and, in the United States, one medical organization demands of its members a written statement that they do not practice fee splitting. In Germany, the conceptions of the medical profession are absolutely opposed to a division of fees. It appears, however, that the increasing economic difficulties are causing some physicians to practice dichotomy secretly. This fact furnished the occasion for Dr. Vollmann's utterances, which expressed the strongest opposition to fee splitting. If the family physician of the patient, at his request, is present at the operation, he gives the patient service that entitles him to a fee. It does not seem likely that any patient will object to that. But the patient must have no reason to suspect that the advice to submit to an operation and the recommendation of a certain surgeon may have been inspired with thought of monetary gain. He continues, "We be it to the physicians if the patient cannot banish such suspicions, if he must fear that the advice to submit to an operation is influenced by subjective motives or by greed of gain. The family physician or the general practitioner, who advises the patient and whose duty it is, in case of need, to consider, together with a specialist, the possible indications for an operation, must be the loyal counselor of the patient, or, in other words, his confidential adviser." Vollmann thus expresses the view of the vast majority of German physicians, and they will be grateful to him for having made himself the exponent of their views while it is still a question of a few rare violations.

The Hygienic Evaluation of Water

At the Giessen session of the Deutsche hygienische Gesellschaft, in September, 1932, criteria regarding the hygienic evaluation of water, as formulated by Professor Kiskalt of Munich and Professor Heisser of Frankfurt-on-Main, were unanimously adopted. According to these criteria, the evaluation of water and of the sources of supply must consider first the purpose for which the water is to be used and not the method of production. Only the medical, hygienically trained expert is competent to determine the hygienic value of water, the entire bacteriologic examination must be left to him. The society uttered a warning, in the interest of public health, against allowing these extremely important duties to pass out of the hands of these specialists. It considers the demand that for the evaluation of drinking water only the quality of the product and not the origin of the water should be taken into account as entirely wrong. It adopted the point of view that the hygienic demand that all water for bathing purposes and especially drinking water shall possess in every respect an acceptable quality must be upheld. It is hardly likely to prove feasible, within the range of true economy to convert by purification processes waste water into drinking water that would

be constantly free from all substances dangerous to health and at the same time be of an agreeable quality. That would necessitate an extensive plant and equipment and such a large trained personnel that the economy effected in procuring the untreated water supply would be more than offset by the cost. Furthermore, so many analyses of the water by experts would have to be made that the cost of conversion would be greatly increased. The highest courts, moreover, have always taken the stand that a foodstuff is to be regarded as "spoiled" if it awakens disgust in the average person when he learns of the true mode of production. It is not necessary to show that it has undergone changes, but it is sufficient if the use of such water awakens disgust and therefore is contraindicated. Furthermore, the forced impairment, by means of so-called rational considerations, of the reactions of the general public to what is regarded as esthetically displeasing, appears to be of extremely doubtful expediency.

Hair Dyes in Relation to the Skin

In Germany, from 2,000,000 to 2,500,000 persons dye their hair regularly or have it dyed. Each of four or five of the larger firms that manufacture hair dyes have an annual output of from five to six million packages, and the smaller firms taken collectively put out about the same amount, so that the total amounts to about 35,000,000 packages. The physician must admit that, in spite of the enormous consumption, comparatively few cases of skin irritation come to his attention, as H. Meyer brings out in a recent number of the *Deutsche medizinische Wochenschrift*. Substances that are known to be harmful have been excluded by law in the process of manufacturing. In the ready-to-use hair dye there is usually an alcohol-containing solution, thickened by the addition of gums or soaps and made strongly alkaline with ammonia. The manufacturers have been compelled by public demand to shorten the time of action of hair dyes, and an increase in the genuineness of the dyes has been attained by making them more alkaline, since only the strongly alkaline dyes penetrate deeply enough the horny substance of the hair and oxidize rapidly. The alkaline content of the dye is commonly the irritating substance, whereas irritation resulting from the dye proper occurs only secondarily. The most aggressive alkaline substance employed is ammonia, but ammonia is also the only volatile alkaline substance, and hence is irreplaceable in the preparation of a hair dye of high quality.

ITALY

(From Our Regular Correspondent)

Dec 15, 1932

National Congress of Surgery

The thirty-ninth Congresso nazionale di chirurgia was held recently in Rome, under the chairmanship of Prof. Roberto Alessandri, director of the Clinica chirurgica of the University of Rome.

ACUTE PERITONITIS

The speakers on the topic "Acute Peritonitis" were Prof. Baldo Rossi and R. Fumagalli of Milan for the surgical side, Dr. Mucchi of Milan for the radiologic part, and Prof. Dante Casella, head of the department of surgery of the Ospedale militare in Rome, for the military side. Owing to the death of Professor Rossi, the surgical side of the topic devolved entirely on Professor Fumagalli. He called particular attention to the excellent results that can now be obtained with a careful diagnosis and timely intervention.

Dr. Mucchi pointed out that it has been regarded as generally contraindicated to subject peritonitis patients to a radiologic examination. It was thought that the information thus obtained would not compensate for the danger and the inconvenience associated with the examination. Encouraged, however, by the conclusions of certain authors who had studied this subject (to mention Laurell and Westerborn), the speaker examined

roentgenologically a large percentage of the peritonitis patients admitted to the Clinica chirurgica in Milan, during the first six months of 1932 (about eighty patients). In addition to the fluoroscopic examination, roentgenograms of the abdomen were made. No contrast medium was used, nevertheless, the author obtained information that clarified the peritoneal process. The exudate may be visible, also its fluctuation, if it is abundant, or otherwise multiform roentgenographic images, the intestinal lumen was round instead of polyhedral as is observed in simple meteorism. Among the indirect signs were paralytic ileus, edematous infiltration of the abdominal walls, changes in the position and mobility of the diaphragm, and pleural inflammations. In perforate peritonitis, gas in the abdominal cavity was nearly always recognizable. With more experience, the speaker expects to extend the data thus far collected. His paper was illustrated with numerous paragraphs.

Professor Casella spoke on acute peritonitis in military hospitals. The perforation of a gastric or duodenal ulcer, he said, is sudden and constant in the peritoneal reaction, which may be confined to the site of the perforation. There are stabbing pain, shallow breathing and an immediate reaction of the rectus muscles, which produces a woody consistency, which is resistant even to general anesthesia. In the first stage one may observe, on percussion, a tympanic note in the upper part of the abdomen, whereas the liver dullness frequently disappears. Other symptoms may be vomiting, constipation, abnormal temperature and pulse, and, exceptionally, subcutaneous emphysema. In case of doubt as to the diagnosis, it is well to administer orally, before operating, a colored solution, as recommended by Gibson. The operation should be as early as possible, for a delay of a few hours may have serious consequences. Spinal anesthesia is preferred. The extent of the operation will vary with the circumstances. Careful cleansing of the abdomen is preferable to lavage. Recoveries in the military hospitals amounted to 55 per cent of the cases, but among those operated on early, 80 per cent of the patients recovered. In peritonitis due to perforation of a typhoid ulcer, the recoveries amounted to 33 per cent. In such cases, an immediate operation is indicated, irrespective of the general condition of the patient, but the prognosis is nevertheless always uncertain. The operator should traumatize the tissues as little as possible. Cleansing by dry methods is always useful. In 90 per cent of the cases the perforation occurs in the more distal 60 cm. of the small intestine, in 10 per cent the colon and the appendix are involved.

Acute peritonitis due to appendicitis, the most frequent form, causes little pain at the start. The Ospedale militare in Rome admitted, during the past five years, 227 patients with appendicitis, in 187 of whom there was acute peritonitis. In this series there were fourteen deaths and 173 recoveries, or 92.5 per cent. In all the cases of peritonitis an operation was performed, and when sure of the diagnosis, the Lennander-Jalaguer incision was always employed.

Traumatic peritonitis in the army is due chiefly to a fall, a kick by a horse or the passing of a wheel over the abdomen. The speaker favored prompt operation when the diagnosis is unquestionable. In other cases, he advises watchful waiting for a few hours. In patients operated on within a few hours of the accident the military hospitals record 31 per cent of recoveries. In the discussion of the papers Donati of Milan brought out that the operations vary if peritonitis is already established. In that case the condition of the patient may be aggravated by the operation. Donati stated that suture of the ulcers was not usually difficult during the first hours but might become difficult as time went on. He agreed that the radiologic examination is important. As to drainage, he thinks that the criterion of time is important and that it may be advisable to close the abdomen without drainage when the operation occurs during the first hours.

CHRONIC HEPATITIS

The second topic, "Chronic Hepatitis," was developed in collaboration with the Società di medicina interna. The surgical discussion was entrusted to Prof G Pascale and to Professor Chiariello of Naples. The speakers reviewed the methods that surgery offers for the functional exploration of the liver but concluded that few of them can be fully endorsed. Among these are the van den Bergh test and the determination of the bilirubin in the blood. From the surgical point of view, chronic hepatitis results chiefly from cholecystitis and from appendicitis and other gastro-intestinal conditions. The speakers reviewed these various forms and then considered the surgical possibilities in atrophy of the liver. Drainage of the biliary passages should always be done in these cases, it may serve to reveal an error in the diagnosis, and often cholecystotomy proves beneficial in cases of primary hepatitis. In about 50 per cent of the hundred cases in which an operation for acute yellow atrophy was performed, a recovery was effected by the intervention.

Referring to the surgery of hepatic cirrhosis, the speakers recalled the Italian contributions in this field. The Talma method, known also as the Morrison or the Drummond-Morrison operation, consists in the fixation of the omentum to the parietal peritoneum. In ascites due to hepatic cirrhosis, many interventions have been advised—which, however, may all be reduced to two types, one based on the principle of draining the fluid into other parts of the body, the other consisting in anastomosing the portal vein and the vena cava to reduce the flow of blood from the portal vein to the liver.

In the discussion, Prof Roberto Alessandri of Rome called attention to the need of distinguishing between the various forms of hepatitis. In some types, surgery is frankly indicated (occlusions due to neoplasms and gallstones, for example) while in other types the surgeon can aid only if summoned in time.

Professor Pende of Genoa said that research carried out in his institute revealed that the thymus exerts an inhibitive or regulatory action on the hepatic cell and that possibly the spleen has a similar action. The surgery of cirrhosis and of chronic hepatitis must continue to rely on the modern functional liver tests.

Pavia was chosen as the meeting place for the next congress. The topics on the program will be "Drainage of the Biliary Tracts" and "Diseases Due to Lesions of the Parathyroids," the latter being discussed in collaboration with the Società di medicina.

New Anatomy Building in Genoa

The Città degli studi in Genoa has recently acquired a new building called "il palazzo della anatomia." This is the eleventh large university building erected in Genoa in recent years. To complete the plans as originally adopted, the building for the surgical clinic and that for the obstetric clinic will soon follow. The "palazzo dell'anatomia" is U shaped and has a capacity of 29,000 cubic meters. It will house in addition to the institutes of normal and pathologic anatomy, the departments of legal medicine and of operative surgery, and the municipal morgue.

The Death of Augusto Murri

Prof Augusto Murri, the eminent clinician at the University of Bologna, has died at the age of 94. Sprung from a noble but poor family, Murri was able to pursue with difficulty a university course. On returning to Italy from abroad, he accepted a small post as health officer where he remained until Guido Baccelli, who had read an article written by him in Germany on acute yellow atrophy of the liver, chose him as his aid. He was given the chair of clinical medicine in Bologna in 1895. At that time he had already published an excellent

work on "The Regulatory Mechanism of Animal Temperature," and another on "The Theory of Fever." His scientific work culminated in his research on hemoglobinuria due to cold. It was Murri who established that, while Starling's "law" holds good for the healthy heart, it is not followed by the diseased heart, which acts, on the contrary, according to norms that Murri established and which many call "Murri's law." Murri was one of the first Italian neurologists. He did research on chronic hydrocephalus, polyclonia and chorea, and Addison's disease. Murri retired, on account of age, in 1926. He is the only Italian, besides Golgi, to be chosen an honorary member of the Berliner Medizinische Gesellschaft.

RIO DE JANEIRO

(From Our Regular Correspondent)

Jan 15, 1933

Reduced Iron in Treatment of Secondary Anemias

Drs J Barbosa Correa, Lauro Cruz and J B Monteiro de Barros Netto of São Paulo have published an interesting work on reduced iron in the treatment of secondary anemias. The studies of Starkenstein, Naegeli, Herz and Morawitz have shown that in anemia not all iron preparations are equally active and that iron is absorbed best in the form of ferrous chloride. Ferrous chloride is unstable and it is better to prescribe reduced iron, which is changed to ferrous chloride in the stomach. Naegeli has shown that the doses employed (from 0.1 to 0.3 Gm) are insufficient and that it is necessary to give 3 Gm daily and often more. He gives 3 Gm of reduced iron three times a day, twenty minutes before meals, in cases of achlorhydria or hypochlorhydria, he adds a little hydrochloric acid. The diet of the patient is not changed. The results obtained with this treatment are excellent even when other means have failed. Reduced iron taken on an empty stomach and in the indicated dosage is well tolerated.

Estimating the Amount of Hemoglobin

Drs O P Santos and E Moura Campos, of São Paulo, have estimated the hemoglobin of seventeen normal individuals by the method of van Slyke (capacity of the blood to fix oxygen) and by the method of Wong (dosage of iron). The hemoglobin values obtained by these two procedures differ greatly. This is surprising at first when one thinks that hemoglobin fixes oxygen proportionately to its iron content. But, as demonstrated by the authors, other factors influence the fixation of oxygen such as temperature and especially the pH of the blood and the alkali reserve. When the partial pressure of carbon dioxide increases, the pH rises and the fixation of oxygen is inhibited, in the case of acidosis, the results obtained by the method of van Slyke are naturally lower than those given by the dosage of iron. The differences found may, however, be explained by the influence of the blood carbon dioxide on the phenomenon of oxidation.

Introduction to Study of Neuropsychic Development of Nurslings

Dr Hosannah de Oliveira, who is a teacher of clinical medicine in the Faculty of Medicine of Bahia, says that the neuropsychic development of nurslings has never been given the place it deserves in the study of disturbances of nutrition and of diseases. To understand the mental and nervous pathologic conditions of infants it is necessary to know the development of their mentality during infancy. In the new-born, the weight of the brain is relatively larger than in the adult: it is equal to one sixth or one eighth of the weight of the body instead of to one thirtieth or one thirty-fifth of the weight as found in adults. The parts of the cerebrospinal axis do not all develop simultaneously: the pyramidal path is completed only at the age of from 2 to 3 years. Virchow has said that the nursing is

a "spinal being" not dominated by the brain. The higher centers develop later, little by little, the reflexes are modified, Babinski's sign disappears, and the brain predominates over the spinal cord. Many causes retard this evolution, such as hereditary and constitutional factors, obstetric traumatism, congenital debility, precocity, disturbances of nutrition, parental infections and intoxications (syphilis, alcoholism). Abnormal infants may be classified in three groups: retarded, imbecile and idiots. The psychology of the nursing permits observations that would be impossible later on. Its psychic development occurs in successive steps, which are usually characterized as the intuitive period, the expressive period and the impulsive affective period. These stages, according to age (Sante de Sanctis), are, first, from 0 to 3 years, second, from 4 to 6 years, third, from 7 to 12 years. Then follows adolescence, from 13 to 20 years.

Buenos Aires

(From Our Regular Correspondent)

Jan. 1, 1933

The Chair of Pharmacology of Rosario

The Academic Council of the Faculty of Medicine of Rosario, at the termination of the three year contract of Prof. Enrique Hug, offered to fill the chair of pharmacology on a competitive basis. Drs. Hug and S. M. Neuschlosz took part in the competition. Dr. Hug is Argentinian. The other candidate had the support of various professors of Rosario, who claimed that there was no reason to go to Buenos Aires for a professor. Neuschlosz collaborated on the "Handbuch der normalen und pathologischen Physiologie," and he had worked in Germany. The reports made relative to the qualifications of the two candidates inflamed local feeling in Rosario with the result that, at the election by the council of professors, Neuschlosz obtained thirty-three votes while Hug obtained only nineteen. This vote has provoked protests and indignation in all the scientific circles of the country.

Murmurs Observed in Cases of Myocardial Infarct

In this country, the study of coronary occlusion has been the subject of many publications. At the Academy of Medicine, Oct. 23, 1931, Prof. M. R. Castej described a sign which he observed in five cases (*Prensa med. argent.*, 1932, No. 19). It consists in the appearance of a murmur occurring in the middle and toward the end of the systole and is soft and not influenced by position of apnea. It predominates in the region of the apex or above it when the infarct occurs at the base (mesotelesystolic murmur) or at the apex when the infarct is apical (protosystolic murmur). In some cases it persists but in others it may disappear with the evolution of the disease. The murmur is not found in all cases of myocardial infarct.

National Scientific Awards

The annual awards of the national government for the best scientific works have been made for 1929 and they have been given for medical work. The first award, of 30,000 pesos, has been conferred on Prof. M. R. Castej for his work "Arterial Hypertension," the second one has not been given and the third, of 10,000 pesos, went to Dr. M. Royer for his book "Uroblin in Normal and Pathologic Conditions."

Outbreak of Bacillary Dysentery

Although there was a small epidemic in Catamarca, cases of bacillary dysentery have been rarely described in this country. Recently there has been an epidemic of dysentery among adults and children, with five deaths, in the village of Las Varillas, province of Cordoba. Investigations made by Sordelli and Savio demonstrated the presence of the Shiga bacillus, which was proved by cultures and agglutination tests. Summer diarrheas are well known in the country but bacteriologic studies

to find the bacillus of dysentery are rarely made. It is possible that bacillary dysentery is rather frequent in Argentina.

News

Dr. J. M. Obarrio has been nominated director of public assistance and sanitary administration of the city of Buenos Aires. From now on, the periodical *Prensa medica argentina* will appear every week and not every fortnight, as heretofore.

Congress of Surgery in Argentina

The fourth Congress of Surgery opened, October 9, in the medical school of Buenos Aires. During the mornings there were surgical clinics and in the afternoons discussions of the following topics: complications of surgery of the biliary tract, by Drs. E. Romagosa, J. M. Allende and A. Altube; treatment of fractures of the femoral diaphysis, by Drs. E. Finochietto, R. Finochietto and M. Gamboa; treatment of infections of the hand, by Drs. A. Baraldi and B. M. Galcagno. Drs. A. Gutierrez and A. Ceballos lectured on peridural anesthesia and abscess of the lung. Several surgical films were exhibited, there was an exhibit of surgical apparatus and materials. The fifth Congress of Surgery will be presided over by Dr. L. Finochietto, and the topics to be discussed will be acute intestinal obstruction in adults, and the treatment of fractures of the elbow.

Prizes from the Universities

The prizes given by the universities of Argentina for the best thesis in medicine for the year 1931 were awarded to Dr. E. A. Aubrun, for his thesis on pruritus and hyperesthesia caused by partial denervation, to Dr. V. G. Foglia, for his thesis on pancreatic regulation of glycemia, and to Dr. D. Provenzano, for his thesis on anesthesia and alkali reserve. The prize of dentistry was given to Dr. J. M. Fiorini for his thesis on phonetic education of patients with palatine fissures. The E. Wilde prize was given to Miss Telma Recca for a thesis on juvenile delinquency in the United States and in Argentina.

JAPAN

(From Our Regular Correspondent)

Dec. 15, 1932

Amendments to the Medical Laws

The home office is going to submit a new bill amending the laws for physicians and dentists. The draft, which was sent to the Central Sanitary Association for consideration, has been approved. It was said that the home office would establish the system of state examinations to license practitioners to practice in certain circles and places. But strong opposition compelled the office to withdraw these two restrictions. The home office intends to control the medical colleges which heretofore have been solely under the control of the education office. The education office is expected to oppose this new proposal.

Among other important items to be amended are the control of what is called "the pay clinic," the prosecution of unlicensed practitioners and the abolition of exaggerated advertisements. The pay clinic is to be required to use record cards with detailed information about the patient. The local government may see these cards at any time, if necessary for the administration of the clinic. The advertisements of medical men will be restricted to their titles and specialties. Their skill, methods of treatment, and their positions will not be allowed in the advertisements. If an unlicensed practitioner examines a patient, he will be sentenced to penal servitude for a maximum of six months or be fined 500 yen. If he assumes to be a licensed physician, he may be given one year in jail or be fined 1,000 yen. Physicians are to be required to keep professional secrets more strictly. If government officials who go to examine the clinic cards of the pay clinic reveal the secrets of physicians or patients, they shall be sentenced to penal servitude for six months or be fined 100 yen.

As for the medical men employed in a hospital of the "health union"—the hospitals under the management of those who are nonprofessional—the new law decidedly declares that those medical men shall belong to the local medical society that is a branch of the Japan Medical Association. This requirement will settle the disputes which now trouble those employed physicians and the association. They will be controlled by the association the same as its regular members.

Opening of St. Luke's Hospital

The opening of St. Luke's International Medical Center in Tokyo will be held, May 27, 1933. The money to construct this new institute was raised largely by popular subscription in the United States, soon after the great earthquake in 1923. It is the only American hospital in Japan and it has the only college of nursing in the entire Orient. It gives treatment to more than 300,000 outpatients and 7,000 inpatients annually. Invitations to the opening ceremonies were sent by Dr. R. B. Teusler, head of the Medical Center, and by Prince Tokugawa, president of the American-Japan Society in Tokyo. An American party headed by George W. Wickersham, the president of the Japan Society in America, is expected to be present. The celebration is of nation-wide interest, because the Japanese, especially those who suffered in that great earthquake, could never forget the gift of this hospital as a token of America's sympathy and kindness.

Special Examinations for Some Undergraduates

Private medical colleges have been accused by the public of being too lenient with their students. The educational department has announced that it will examine the undergraduates of the private medical colleges in order to enforce discipline. The examination will be on some clinical subject, which has not yet been made public. The subjects will be changed every year.

New Leprosy Sanatorium in Chosen

Since the antileprosy campaign in Japan proper has been most successful during the last year, the same methods will be tried in Chosen (Korea) in 1933. A new association for antileprosy work has just been established in Chosen and it will in the near future build a sanatorium of 2,000 beds. This sanatorium will be presented to the Chosen government, which will have charge of it under the control of the governor-general.

Koch Memorial Lectures

The late Baron Dr. Kitasato established a memorial lecture to commemorate the birthday of Koch. The nineteenth lecture was held December 11 at Keio University. Dr. Iyehara lectured before a large audience on the sanitary conditions in Manchuria and Dr. Sakurai on the action and application of radiation.

Marriages

JAMES WATSON KENNEDY Rochester Minn. to Dr. LILIAN M. LITCHER of Detroit Lakes recently.

BENJAMIN FRANKLIN JONES Atlanta Ga. to Miss Mary Elizabeth Waith of New York Dec. 22, 1932.

JAMES CHARLES KLEIN Hoboken N. J. to Miss Marie Annieri of Teaneck January 7.

ROBERT GOODMAN Powers Lake N. D. to Miss Alice Hendrickson of Fargo recently.

JOHN R. OSHEA Fargo N. D. to Miss Hazel Papermaster of Grand Forks recently.

GEORGE T. KAMIT Newark N. J. to Miss Rosalind Turk of Brooklyn Dec. 4, 1932.

NATHAN GOLDIE to Miss Shirley Beatrice Rozman both of Milwaukee January 1.

Deaths

Charles Spencer Williamson ♂ Chicago, Medical College of Ohio, Cincinnati, 1896, since 1912 professor of medicine and head of the department, University of Illinois College of Medicine, adjunct professor of medicine, 1901-1903, and professor of clinical medicine, 1903-1912, formerly assistant professor of diseases of the stomach and professor, Chicago Polyclinic, member of the Association of American Physicians and the American Society for Clinical Investigation, served during the World War as a lieutenant colonel in the U. S. Army Medical Corps, director of the School of Military Hygiene and Sanitation at Fort Oglethorpe, in 1917 was awarded the Certificate of Merit by the American Medical Association for an exhibit of research work, for many years on the staffs of the Cook County and the Research and Educational hospitals, editor of "French's Practice of Medicine" in 1910, aged 60, died, February 15, of coronary thrombosis.

Alfred Stephen Burdick ♂ North Chicago, Ill., Rush Medical College, Chicago, 1891, since 1921 president and general manager of the Abbott Laboratories, vice president and assistant general manager, 1916-1921, associate professor of medicine, Illinois Medical College, 1899-1904, president of the American Drug Manufacturers Association, 1923-1925, during the World War served on selective service board, number 59, in 1923 was appointed lieutenant colonel, medical reserve corps, author of "Standard Medical Manual," "The Remedy" and "Common Emergencies", aged 65, died, February 11, in the Highland Park (Ill.) Hospital, of pneumonia.

Lawrie Byron Morrison ♂ Brookline, Mass., University of Vermont College of Medicine, Burlington, 1902, member of the American Gastro-Enterological Association, American Roentgen Ray Society and the Radiological Society of North America, member and past president of the New England Roentgen Ray Society, on the staffs of the Huntington Memorial Hospital, New England Deaconess Hospital, Faulkner Hospital and the New England Baptist Hospital, Boston, aged 57, died, January 16, of carcinomatosis.

Parker Syms, New York, Medical Department of the University of the City of New York, 1882, member of the Medical Society of the State of New York, fellow of the American College of Surgeons on the staffs of the Midtown Hospital, New York City Hospital, West Side Hospital and the Lebanon Hospital, New York N. Y. Hospital and the All Souls Hospital, Morristown, N. J., aged 72, died, January 26, in Fitzwilliam, N. H., of cerebral hemorrhage, chronic valvular heart disease and nephritis.

Harry O. Sappington, Galveston, Texas, University of Texas School of Medicine, Galveston, 1898, member of the State Medical Association of Texas, at one time demonstrator of gynecology and obstetrics at his alma mater, formerly state health officer, city health officer and mayor, at one time superintendent of the John Sealy Hospital, in 1929 was placed in charge of the outpatient department of the U. S. Public Health Service, aged 72, died, January 27, of cerebral hemorrhage.

Robert Fitzsimmons Trainer, Williamsport, Pa., University of Pennsylvania School of Medicine, Philadelphia, 1898, member of the Medical Society of the State of Pennsylvania, at one time secretary of the Lycoming County Medical Society, served during the World War, city health officer, formerly county coroner, member of the board of education and inspector of schools on the staff of the Williamsport Hospital, aged 61, died, January 7.

George Howard Monks ♂ Boston, Harvard University Medical School, Boston, 1880, member of the American Surgical Association and the New England Surgical Society, fellow of the American College of Surgeons, at one time professor of oral surgery at his alma mater, formerly consulting surgeon to the Boston City Hospital, aged 79, died, January 26, of coronary disease and angina pectoris.

Edward Vincent Hogan, Halifax, N. S., Canada, McGill University Faculty of Medicine, Montreal, Que., 1896, professor of surgery and clinical surgery, Dalhousie University Faculty of Medicine, fellow of the American College of Surgeons, surgeon to the Victoria General Hospital and surgeon in chief to the Camp Hill Military Hospital, aged 59, died, January 20, of heart disease.

Raymond Clyde Wolfe ♂ Major U. S. Army, retired, St. Paul, Indiana University School of Medicine, Indianapolis, 1911, served during the World War, entered the medical corps of the U. S. Army as a first lieutenant in 1920 and retired with

rank of major in 1930 for disability in line of duty, aged 44, died, January 21, of aortitis and chronic nephritis

Jacob Wilford Wine ☉ Chicago, Chicago Homeopathic Medical College, 1895, Rush Medical College, Chicago, 1901, served during the World War, diagnostician in the contagious diseases department, Chicago Board of Health, on the staff of the Columbus Memorial Hospital, aged 65, died, February 3, of coronary thrombosis

Edwin Graffam Earle ☉ Chicago, College of Physicians and Surgeons, Chicago, 1891, formerly professor of histology and associate professor of medicine at his alma mater, on the staff of the Illinois Masonic Hospital and attending physician to the Columbus Hospital, aged 66, died suddenly, February 2, of angina pectoris

Frederick S. Luhmann ☉ Manitowoc, Wis., Rush Medical College, Chicago, 1877, Ludwig-Maximilians-Universität Medizinische Fakultät, München, Bavaria, Germany, 1880, at one time county coroner and member of the school board, formerly on the staff of the Holy Family Hospital, aged 80, died, January 10

Max Ernest Witte, Sr. ☉ Clarinda, Iowa, State University of Iowa College of Medicine, Iowa City, 1881, past president of the Iowa State Medical Society, member of the American Psychiatric Association, superintendent of the Clarinda State Hospital, aged 73, died, January 29, of cerebral thrombosis

Freeman Valentine Walker ☉ Captain, U S Army, retired, Bluffton, S C University of Virginia Department of Medicine, Charlottesville 1881, entered the army as an assistant surgeon in 1886 and was retired in 1906 under a special act of Congress, aged 72 died January 21, of angina pectoris

Naman Henry Soble, Elmira, N Y, College of Physicians and Surgeons in the City of New York, Medical Department of Columbia College, New York, 1890, member of the Medical Society of the State of New York, on the staff of St Joseph's Hospital, aged 69, died, January 16, of heart disease

Frank Ross Sherard ☉ Mobile, Ala., University of Pennsylvania School of Medicine, Philadelphia, 1894, fellow of the American College of Surgeons, on the staffs of the Mobile City Hospital and the Providence Infirmary, aged 60, died, Dec 30, 1932, of carcinoma of the stomach

Thomas C. Cochran, Kokomo, Ind., University of Louisville (Ky.) School of Medicine, 1891, member of the Indiana State Medical Association, city health officer, formerly county coroner, aged 69, died, January 28, in the Howard County Hospital, of carcinoma of the stomach

David Thomas Tayloe, Washington, N C, Bellevue Hospital Medical College, New York, 1885, member of the Medical Society of the State of North Carolina, fellow of the American College of Surgeons, proprietor of a hospital bearing his name, aged 68, died, January 10

John Z. Mraz ☉ Oklahoma City, Rush Medical College, Chicago, 1903, member of the American Urological Association, served during the World War, aged 50, on the staff of the Wesley Hospital, where he died, January 12, of tuberculosis, enteritis and peritonitis

Arthur Jordan, Helena, Mont., State University of Iowa College of Medicine, Iowa City, 1895, member of the Medical Association of Montana, city and county health officer, aged 63, died, January 13, in St John's Hospital, of heart disease and cerebral hemorrhage

John Harris Henson ☉ Mound Valley, Kan., Kansas City College of Medicine and Surgery, 1916, past president of the Labetti County Medical Society, member of the state board of health, aged 66, died, Dec 25, 1932, of bronchopneumonia and influenza

Albert James Brainard, Dayton, Ohio, Cleveland Homeopathic Medical College 1899, served during the World War, aged 56, for ten years assistant surgeon at the Veterans' Administration Home, where he died, February 1 of heart disease

George Elisha May ☉ Newton, Mass., Boston University School of Medicine, 1890, fellow of the American College of Surgeons, aged 72, died in January at the New York Post-Graduate Medical School and Hospital, of bronchopneumonia

Henry Bayard Whitehorne ☉ Caldwell, N J, Albany (N Y) Medical College, 1873, formerly secretary of the board of health of Verona and member of the board of education, aged 86, died, Dec 23, 1932, of cerebral hemorrhage

William Charles Jones, Hollister, Calif., University of Michigan Homeopathic Medical School, Ann Arbor, Mich., 1882, veteran of the Spanish-American War, aged 71, died, Dec 10, 1932, of bronchopneumonia and arteriosclerosis

Charles Hyde Davidson ☉ Lexington, Va., University of Virginia Department of Medicine, Charlottesville, 1894, county

health officer, on the staff of the Stonewall Jackson Memorial Hospital, aged 60, died, January 23, of pneumonia

Horace James Sims, Daphne, Ala., University of Tennessee Medical Department, Nashville, 1906, member of the Medical Association of the State of Alabama aged 61, died, Dec 10, 1932, of myocarditis and acute nephritis

Louis Warren Fargo, Augusta, Ga., University of Georgia Medical Department, Augusta, 1878, formerly instructor and assistant in pathology, secretary of the faculty and photographer at his alma mater, aged 80, died, Dec 14, 1932

Samuel Hirsh Segool ☉ Boston, Harvard University Medical School, Boston, 1928, aged 29, on the staff of the Boston City Hospital, where he died January 11, of thrombosis of the splenic vein and pulmonary infarction

William Johnson Clarke, Milford, Mass., Harvard University Medical School, Boston, 1867, Civil War veteran, for many years on the staff of the Milford Hospital, aged 89, died, January 17, of cerebral hemorrhage

Burton Adelburt Washburn, Paducah, Ky., Beaumont Hospital Medical College, St Louis, 1900, member of the Kentucky State Medical Association, served during the World War, aged 56, died, Dec 13, 1932

John Redmond Macnamara, Chicago, College of Physicians and Surgeons, Chicago, 1887, veteran of the Spanish-American and World wars aged 67, died, January 8, of carcinoma of the gallbladder and liver

George Samuel Morrow, Dayton Pa., College of Physicians and Surgeons, Keokuk, Iowa, 1887, member of the Medical Society of the State of Pennsylvania, aged 68, died, Nov 22, 1932, of cerebral hemorrhage

Ernest D. Mabry, Oklahoma City, Missouri Medical College, St Louis, 1895, member of the Oklahoma State Medical Association, aged 58, died January 12, in the Polyclinic Hospital, of carcinoma of the hand

H. Watson Moffitt, Washington, D C, Baltimore Medical College 1907, member of the Medical Society of the District of Columbia served during the World War, aged 48, died, January 22, of heart disease

Guy William Taylor, El Reno Okla. Memphis (Tenn.) Hospital Medical College, 1887, member of the Oklahoma State Medical Association, aged 72, died, Dec 18, 1932, of influenza and myocarditis

Thomas Claudius Bradwell, Waxhaw, N C, Medical College of the State of South Carolina, Charleston, 1912, aged 45, died, January 20, in the Baker Sanatorium, Charleston, of gangrene of the lung

William C. McCandless, Butler, Pa. Jefferson Medical College of Philadelphia, 1881, aged 75, died, in January, at the Butler County Memorial Hospital, of injuries received in an automobile accident

George Elwood Pumphrey, Carthage, Ill. Keokuk (Iowa) Medical College, 1897, member of the Illinois State Medical Society, served during the World War, aged 66, died, January 1, of pneumonia

Rollin Ledru Banta, Burt, N Y, University of Buffalo School of Medicine, 1871, member of the Medical Society of the State of New York, aged 86, died, January 13, in Newfane, of myocarditis

George Lewis Mack, Bound Brook, N J, College of Physicians and Surgeons, Baltimore, 1907, member of the Medical Society of New Jersey, aged 51, died, January 16, of heart disease

William H. Harrison, Loudon, Tenn., Vanderbilt University School of Medicine, Nashville, 1883, member of the Tennessee State Medical Association, aged 78, died suddenly, Dec 22, 1932

James Everette Coleman, Chicago, Loyola University School of Medicine, Chicago, 1928, aged 33, died, Nov 18, 1932, in the Provident Hospital, of cocaine poisoning, self-administered

Julius Johnston Grosvenor, Richmond, Ind., Indiana University School of Medicine, Indianapolis, 1911 served during the World War, aged 43, died, January 8, of influenza and encephalitis

Otto M. Kuehn, Waterloo, Ill., Ludwig-Maximilians-Universität Medizinische Fakultät München Bavaria, Germany, 1864 Civil War veteran, aged 90, died, January 5, of bronchopneumonia

Lee Ricard Martin ☉ Washington, D C George Washington University School of Medicine, Washington 1926 aged 32, was found dead, January 31, of poison, self-administered

H Rufus Boitnott, Dawson Springs, Ky, Hospital College of Medicine, Louisville, 1906, aged 56, died, January 29, in the Jennie Stuart Memorial Hospital, Hopkinsville, of septicemia

John Bell Dykes, Mankato, Kan, University of Tennessee Medical Department, Nashville, 1887, member of the Kansas Medical Society, aged 72, died, Dec. 26, 1932, in Washington, D C

Dallas Dee Davis, Onawa, Iowa, University of Nebraska College of Medicine, Omaha, 1925, aged 32, died, January 19, as the result of an electric shock from a roentgen-ray machine.

Carlos Manuel Riveroll, Los Angeles, Universidad Nacional Facultad de Medicina, Mexico, D F, 1907, aged 54, died, Dec. 1, 1932, of pulmonary edema and bronchopneumonia

Jay Dever Linton, Philadelphia, Jefferson Medical College of Philadelphia, 1902, served during the World War, aged 54, died, January 17, in the U S Naval Hospital, of pneumonia

Mary Adelaide Stolz, Berkeley, Calif, New York Medical College and Hospital for Women, 1897, aged 79, died, Dec. 6, 1932, of auricular fibrillation and arteriosclerosis

Richard Huckstep Holt, Middleburg, Va, University of Virginia Department of Medicine, Charlottesville, 1925, aged 34, died, January 2, of carbon monoxide poisoning

Christian M Fager, Harrisburg, Pa., University of Pennsylvania School of Medicine, Philadelphia, 1881, aged 72, died, January 22, of coronary thrombosis and angina pectoris

James Douglas Ward, San Antonio, Texas (licensed, Texas, year unknown), veteran of the Spanish-American War, aged 71, died, January 13, of cerebral hemorrhage

Gerard Charles Mangini, Waterbury, Conn, Regia Università di Napoli, Facoltà di Medicina e Chirurgia, Italy, 1907, aged 51, died, January 10, of pneumonia

Walter FitzGerald, New York, Harvard University Medical School, Boston, 1930, on the staff of the Bellevue Hospital, aged 28, died, in January, of pneumonia

Byron Stager Turner, Chicago, Chicago Medical College, 1887, aged 69, died, January 7, of thrombosis, cerebral hemorrhage and carbuncle of the neck

Henry Horace Rogers, Los Angeles, Kentucky School of Medicine, Louisville, 1882, aged 77, died, Dec. 25, 1932, of chronic myocarditis and nephritis

William Polk Moore, Jr, Portland, Tenn, Vanderbilt University School of Medicine, Nashville, 1882, aged 75, died, Dec. 23, 1932, of chronic cystitis

George M Mockbee, Hillsboro, Mo, American Medical College, St Louis, 1882, formerly county coroner, aged 74, died, January 2, of heart disease

Frank Joseph Marecic, Flatonia, Texas, Kansas City College of Medicine and Surgery, 1919, aged 42, died, Dec. 15, 1932, of a streptococcal infection

Charles T Lancaster, Sadieville, Ky, Cincinnati College of Medicine and Surgery, 1889, aged 69, died, January 8, of cerebral hemorrhage

Joseph P Riddle, Rushville, Ohio, Medical College of Ohio Cincinnati, 1885, aged 73, died, January 26, in the Mercy Hospital, Columbus

Vincent Rockwell Killen, Long Beach, Calif, Rush Medical College Chicago 1900, aged 56, died, Dec. 4, 1932, of coronary occlusion

Samuel Hampton Halley, Lexington, Ky, Hospital College of Medicine, Louisville, 1898, aged 61, died, January 19, of heart disease

Francis Ferdinand Lang, Hettinger, N D, Bennett Medical College Chicago 1912, aged 47, died suddenly, January 13, of heart disease

Albert Minear Fulton, Thomas, Okla, College of Physicians and Surgeons Chicago, 1893, aged 64, died, Nov. 3, 1932, of pneumonia

Nelson Tatum Rice, Blaine, Ky, Louisville Medical College 1886, Civil War veteran, aged 80, died, Dec. 24, 1932, of pneumonia

Eugene John Wislocki, San Jose, Calif, University of Cracow Poland 1887, aged 71, died, January 9, of heart disease

Frank D Fanning Butler, Ind, College of Physicians and Surgeons Chicago 1897, aged 59, died, January 16, of pneumonia

Jesse Bowers McAfee, Dalton, Ga, Atlanta School of Medicine 1912, aged 47, died, January 17, of pneumonia

J M Gregory, Macon, Ga, Atlanta Medical College 1893, aged 70, died, January 9, of coronary thrombosis

Bureau of Investigation

WILLIAM HOWARD HAY Capitalizing Food Fads and Fantasies

During the past few years the Bureau of Investigation has received a large number of inquiries regarding Dr William Howard Hay, recently of East Aurora, N Y, but now at Mount Pocono, Pa. A physician in Washington, D C, wrote

I am enclosing herewith literature received by a patient of mine from Pocono Hay ven at Mount Pocono Pa. I understand that Dr William Howard Hay, the medical director, was for a long time the medical director of the Sun Diet Sanatorium at East Aurora N Y. I have heard a material amount of criticism, apparently well founded about the methods of the Sun Diet Sanatorium at East Aurora. Does the Association have any information of value concerning the institution?"

An Ohio physician inquired

Within the last few weeks I have had so many queries concerning Dr Hay's Sun Diet that I have been attempting to find some literature on the subject. They say that he has a sanatorium in East Aurora just outside of Buffalo and a more recent location in the Pocono Mountains called the Hay ven. His theory is that certain food groups do not combine well in the stomach and he has a chart showing the incompatibles which are groups that are usually combined for example meat and potatoes. Do you know anything about him and his diet as recommended for various diseases?"

From Boston this inquiry came, also from a physician

Can you give me any information on Dr Hay and the Hay diet which has become so popular in certain sections of our country? I believe that it is based on the idea of not eating meats and starches in the same meal.

These are but three of the most recent inquiries from hundreds that have come in within the past year or two

William Howard Hay, according to our records, was born in 1866 and holds a diploma from the Medical Department of the University of the City of New York, 1891. He was licensed in Pennsylvania the same year and, by endorsement, in New York in 1920. Dr Hay for a time was a member of his local medical society, but in 1930 his local society informed the American Medical Association that Dr Hay had resigned just before charges of unethical advertising were to be preferred against him. He seems to have practiced in Youngsville, New Castle and Corry, Pa, and he has claimed that for a few years he was the surgeon for the American Tinsplate Company of New Castle, Pa. He went to Buffalo, N Y, about 1921. In Pennsylvania he seems to have operated what was known as the Hay Rest Cure, for a clipping from a newspaper published in 1918 in Corry, Pa, recorded that Dr Hay had introduced 'a special service department for the cure of hay fever cases'

The American Medical Liberty League, which, as our readers know, is an organization devoted to the blackguarding of the American Medical Association in particular and of scientific medicine in general, sells a number of leaflet reprints. One of these is an article by William Howard Hay entitled "Who Are the Quacks?" in which Dr Hay develops the thesis that the quacks are not the food faddists, the cultists, the "drugless healers" the chiropractors, the naturopaths or the seventh-sons-of-seventh sons but are the members of the regular medical profession

Dr Hay appears to have been active some years ago in the American Association for Medico-Physical Research, another of the 'twilight-zone' organizations. This concern was dealt with at some length by the Bureau of Investigation in an article published in THE JOURNAL of Sept. 19, 1925. Dr Hay was also prominent in the so-called Defensive Diet League of America being a member of its Medical Advisory Board. The Bureau of Investigation published an article on that concern in THE JOURNAL of June 20, 1925. More recently Dr Hay seems to have joined that group of faddists who obtain publicity by disseminating propaganda against the use of aluminum cooking utensils

SUN AND DIET SANATORIUM

Dr Hay seems to have gone into what the showmen call 'big time stuff' when he became medical director of the East Aurora Sun and Diet Sanatorium which is operated from East

Aurora, N Y, a suburb of Buffalo This sanatorium was incorporated in 1927 under New York laws and is said to have taken over the assets and business of what had previously been known as the Sun-Cure Sanatorium, also a New York corporation The officers of the East Aurora Sun and Diet Sanatorium were said to be Oliver Cabana, Jr, president, Thomas Healy, vice-president, Fred D Morgan, secretary and managing director, and Clara B McCollum, treasurer Mr Cabana seems to be the chief owner of the Sun and Diet Sanatorium, although apparently his main business is that of president and treasurer of the Liquid Veneer Corporation of Buffalo He is also said to be connected with one of the Buffalo banks The files of the Bureau of Investigation contain some advertising matter put out some ten years ago by the Kemozone Laboratories, Inc, of Buffalo, N Y Kem-O-Zone was described as "The Aristocrat of Antiseptics" According to the letterhead at the time, the president and treasurer of Kemozone Laboratories, Inc, was Oliver Cabana, Jr Mr Thomas Healy, vice-president of the Sun-Diet Sanatorium, and Mr Morgan and Clara B McCollum, secretary and treasurer, respectively, of the Sanatorium, are all said to be connected with the Liquid Veneer Corporation

We learn from a circular of the Sun-Diet Health Service, which is affiliated, apparently, with the "sanatorium," that Mr Cabana in 1927 organized the East Aurora Sun and Diet Sanatorium as an institution that was to be "devoted to the removal of the cause of disease through the natural means of proper food and regulated exposure to the sun" The same circular records that Mr Cabana picked out for the medical

weeks, had been named defendant in the Federal civil court at Scranton in an action that was filed by the Sun-Diet Sanatorium, Inc, of East Aurora, N Y It went on to state that, in the first suit started two weeks previously by the Sun-Diet Health Service, Dr Hay was charged with breaking his contract and an injunction had been asked against his activities at Mount Pocono The later suit against Dr Hay and eight co-defendants asked \$200,000 and sought to restrain them from using the methods of the East Aurora concern The other defendants named in the newspaper report with Dr Hay were Carl J Gifford, Austin E Stutzman, Marie Thomas Best, Olive J Godfrey, Murdock D MacIver, Vivian Healy, Agnes Diamond and Agnes Beumer One may be excused for wondering if "one of nature's noblemen" is endeavoring to make it rather warm for Dr Hay

At this point, before leaving the East Aurora concern, it is of interest to the medical profession to know that Mr Cabana's new medical director, successor to William Howard Hay, is Rasmus Larrsen Alsaker Those of our readers with long memories may remember that the Bureau of Investigation published in THE JOURNAL of Dec. 10, 1921, an article entitled "The Alsaker Way" Dr Alsaker was born in 1883 and received a diploma from Bennett Medical College in 1910 Dr Alsaker has been an advertiser in a large way, issuing a series of "Books That Teach The Alsaker Way to Health and Efficiency" In some of the Alsaker advertising published when the doctor had been out of medical college barely seven years, he was heralded as an "eminent authority" who had "put the net result of his many years of professional experience with sick

people into his writings"! During one of the influenza epidemics, public fear was capitalized in an attempt to sell a book, "The Alsaker Way to Prevent and Cure Influenza, Catarrh, Pneumonia and Other Troubles of the Nose, Throat, Lungs, Etc"

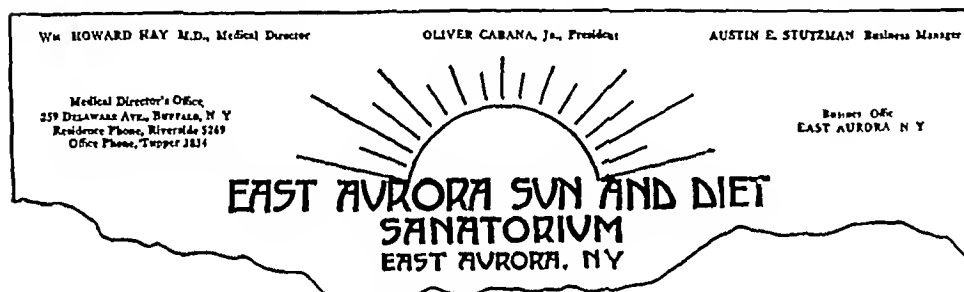
HEALTH VIA FOOD

But getting back to Dr Hay Dr Hay's *magnum opus* is his book "Health via Food," which has already been referred to as having been dedicated to his late employer, Mr Cabana The thesis developed in the book, briefly stated, seems to be that all pathologic states are due to errors in diet and "deficient

drainage"—the latter phrase accredited to William Arbuthnot Lane, who seems to be one of Dr Hay's tutelary divinities To overcome the "deficient drainage," Dr Hay, in various parts of his book, suggests the use of "Pluto Water" and then a change in the dietary habits of the patient "Acidosis," of course, looms large, and Dr Hay sees a definite "connection between acid-forming foods and disease" Thus, in the chapter on "The Role of Food," on pages 161 and 162, we are told

"Food is a direct cause of disease because it is the only source through which we can create these acids If acid causes disease, as there is not the slightest doubt, and if acid can come from nothing but food, then food is the one and only cause of disease, and how can we escape such conclusion?"

As we used to say when we studied Euclid Q E D There are, according to Dr Hay, four causes of acidosis (1) The use of too much concentrated protein, (2) the use of "refined, processed, denatured, emulsified, bleached, preserved, adulterated" foods, chiefly of the carbohydrate group, (3) the combining of proteins and carbohydrates, and (4) the retention in the colon of food residues beyond twenty-four hours following their ingestion Nearly every food faddist develops the obsession that proteins and carbohydrates should not be eaten at the same time, because, forsooth, proteins need acid for their digestion, while carbohydrates call for alkaline digestive juices The fallacy is based on that little knowledge that is dangerous Those who fall into it apparently conceive the human stomach as a large, open bag into which food drops, or is passed down, through the esophagus Just how the exponents of the theory that carbohydrates and proteins should not be eaten together can get around the fact that probably most of the common foodstuffs contain both proteins and carbohydrates, together with a certain proportion of fats, has never been explained



Facsimile (reduced) of the letter heads used at East Aurora when Dr Hay was Medical Director

adviser to his institution Dr William Howard Hay, "nationally known for the past decade as an authority on dietetics" In this connection, William Howard Hay's book "Health via Food," of which more later, is dedicated to Mr Cabana, whom Dr Hay describes as "one of nature's noblemen" Dr Hay further stated in his book that Mr Cabana, "not content to enjoy selfishly" his knowledge of the benefits of the right kind of food, determined to pass on the information to the public through a nation-wide educational campaign which he was going to carry on at "great financial risk" but a risk that he was willing to run "for his convictions" In a glowing peroration Dr Hay closes the dedication of his book to Mr Cabana with the statement "May his tribe increase and his shadow never grow less!"

POCONO HAY-VEN

Whether Dr Hay still holds Mr Cabana in the same high regard today as when he wrote his book (copyrighted 1929) may be doubted, for, as has already been stated, Dr Hay is no longer connected with the East Aurora concern but has opened what seems to be a competing institution in Mount Pocono, Pa In August, 1932, a Pennsylvania paper reported that Dr William Howard Hay and some hotel men had purchased the Mount Pleasant House at Mount Pocono and would open it under the name "Pocono Hay-ven" It was further stated that a Mr A E Stutzman, who had been associated with Dr Hay for the past six years, would be connected with him in this new venture Austin E Stutzman a year or two ago was the business manager of the East Aurora Sun and Diet Sanatorium of which William Howard Hay was medical director and Oliver Cabana, Jr, president

The Wilkes-Barre (Pa) Times-Leader for Dec 23 1932, reported that William Howard Hay, for the second time in two

Those who seek alcoholic stimulation—or narcosis—without the necessity of violating the law of the land, will be interested in the following brief paragraph from Dr Hay's book.

The heavy user of starches or sugars, if he combines these with either acid fruits or with meat or eggs can get up a very sizable jag from the alcohol generated in the stomach and intestine.

While Dr Hay recommends the use of Pluto Water as an evacuant, he is even more enthusiastic in his recommendation of the enema

There is but one harmless way to empty the colon, and this is with the daily [1] enema a measure that can be kept up indefinitely [11] without the slightest harm if conducted right. The use of the enema daily is a beneficent affair not in any way interfering with the normal function of the colon, and of great assistance to a colon hindered with its work.

Fasting, of course, is another of the panaceas suggested by many food-faddists, and here again Dr Hay runs true to type. In the chapter on this subject in "Health via Food," Dr Hay claims that he had one patient under his care who fasted for fifty-five days and lost sixty pounds in weight. During this period of nearly two months, the patient, a woman, is alleged to have continued her usual household duties, getting meals for the family, and "preparing the usual savory dishes." Under these circumstances one wonders just what scientific basis Hay has for stating unequivocally that the woman actually did fast for fifty-five days. In the words of a popular radio entertainer, "Vas you dere, Sharlie?"

It need hardly be said that Dr Hay is an anti-vivisectionist and has appeared on the platform under the auspices of the

eats fruit and raw vegetable juices for from one to two weeks and then switches to raw vegetable salads, vegetable broths, grains, baked potato and whole wheat bread. After this he is to take "the usual combination of foods as suggested by the Defensive Diet League." An enema of warm water in which bicarbonate of soda has been dissolved is to be given every night or, even better, both night and morning. And this is "Health via Food" by William Howard Hay, M D!

Correspondence

"MATERNITY WARDS IN GENERAL HOSPITALS" A REPLY

To the Editor—Dr J B DeLee states that the article "The Maternity Ward of the General Hospital," published in the January 7 issue of THE JOURNAL, is his reply to resolutions and editorials evoked by his recent publications on the subject. His reply consists of two principal portions

1 A series of quotations from various writers expressing their criticisms of modern hospital obstetrics as being more dangerous than home deliveries, and of the general hospital as being less safe, from the obstetric point of view, than the specialized maternity hospital

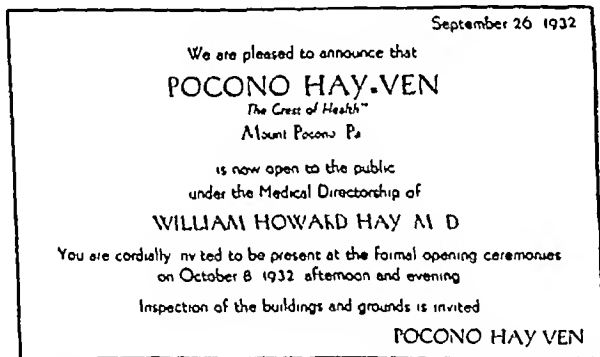
2 A collection by Dr DeLee and his co-author, Dr Siedentopf, from apparently all available sources, of a series of so called puerperal epidemics occurring in hospitals. They stress the fact that thirty-five such epidemics occurred in general hospitals, while only three such epidemics occurred in specialized maternity hospitals

The Cleveland Hospital Obstetrical Society, organized for the purpose of studying the obstetric mortality of Cleveland hospitals, has authorized the reply that follows

The sole purpose of studies of this type should be to arrive at facts which will enable us to provide better and safer care for women in childbirth. Dramatic denunciations, unless based on such facts, mislead the public, alarm women who desire to have children, by undermining their confidence in their medical advisers, and are productive of great harm

A detailed study by our society of every puerperal death in Cleveland for the last four years clearly demonstrates the startling fallacy of figures based on puerperal mortality. These figures include all deaths of women dying while pregnant or who have recently been pregnant, with the exception of proved cases of criminal abortion, which are classed as homicides. In other words, the term "puerperal death rate" includes, besides the deaths of women dying near term from a number of causes that can properly be grouped under the term "delivery death rate," a large number of other cases, of which the spontaneous and self-induced abortions, the ectopic pregnancies and the toxemias of the early months of pregnancy are the most numerous classifications. Considering the abortion situation alone, women tamper with themselves or go to midwives or disreputable practitioners. If they become infected they call their family doctor, who promptly sends them to the hospital. This is practically always a general hospital, as most maternity hospitals because they lack the facilities for proper isolation and care will not accept this type of case. The number of deaths from this classification alone is high and it adds greatly to the puerperal death rate of the general hospitals in comparison with that of home deliveries and especially in comparison with that of specialized maternity hospitals

Our society feels that the only criterion of the efficiency of a maternity division of a hospital is the delivery death rate of that division. The puerperal death rate of the hospital has nothing to do with the matter. We need ask only one question—namely, what percentage of the women delivered in this institution live and what percentage die. Our studies have brought out the following facts: Sixty per cent of Cleveland babies



Facsimile (reduced) of the card sent out announcing the opening of Dr Hay's new venture Pocono Hay-Ven

American Anti-Vivisection Society. Dr Hay is also opposed to vaccination, or, at least, he was so advertised by the Pittsburgh Health Club, an organization with which he seems to be popular. There have been four "doctors" listed among the officers of the Pittsburgh Health Club, one of them a dentist, one an optician, and the other two osteopaths. Dr Hay's opposition to vaccination may be better understood when we are told in his book that smallpox is nothing but "an effort to throw off waste matter."

In one of Dr Hay's articles allegedly written expressly for the bulletin of the Defensive Diet League already referred to, he tells of the wonderful results that he has had in treating progressive pernicious anemia. He states that he has "for twenty years been restoring these cases to normal after late stages were reached after eminent authority had abandoned hope of even a remission and even after the stage of coma had been reached." Dr Hay modestly explains that he does not claim to have cured a single case of this disease but only to have appreciated the cause and removed it. It appears that the cause of pernicious anemia is the use of refined denatured emulsified preserved adulterated food with a resulting intestinal stasis. In the same article Dr Hay outlines his treatment for pernicious anemia and after reading it one pictures the patient as exclaiming, "O death! Where is thy sting?" First of all the victim must use a large detergent purge or epsom or chamberlain's or a half-pint of concentrated Pluto Water or Epsom salt powders etc at a time taken fifteen to twenty minutes apart. After the preliminary treatment the patient

are born in hospitals. In this 60 per cent are found practically all the cases the status of which is not normal—cases of serious disproportion nearly all arrive at the hospital before delivery is complete, cases of cardiac incompetence, of renal insufficiency, cases of placenta praevia and of ablatio placentae, patients with serious toxemia or with actual eclampsia, patients with acute diseases such as pneumonia, are sent by their physicians to the hospital either before or sometime during labor. The result is that the patients who are delivered at home are a selected group of normal cases, who would have uncomplicated labors no matter where delivered. A striking majority of hospital delivery deaths are of patients admitted to the hospitals for known pathologic conditions, sent to the hospital because of its better facilities for saving their lives. A careful study of all puerperal deaths in Cleveland for one year (1931) showed that, of the women who died (from puerperal causes) in hospitals, 76 per cent were sent from the home to the hospital for known pathologic conditions. Women with infected abortions rarely die at home because they are sent to the hospital. Women with pathologic complications of pregnancy rarely die at home, because they are sent to the hospital, and yet the puerperal death rate of the hospital is compared with that of the home.

Dr DeLee's argument against general hospitals accepting obstetrics is based on his figures of puerperal epidemics. His ratio of epidemics in general hospitals to those in specialized maternity hospitals is 35 to 3, approximately 12 to 1. He makes no mention of the equally pertinent matter of the relative numbers of these institutions. According to the 1932 hospital number of *THE JOURNAL*, there were in 1931 in the United States, 3,258 registered general hospitals taking obstetric patients, and 145 registered maternity hospitals. This ratio is 22 to 1. In Dr DeLee's state of Illinois, 231 general hospitals take obstetric cases while 9 maternity hospitals are registered, that is, 24 to 1. Accepting Dr DeLee's own ratio of 12 to 1 as correct, the specialized maternities have twice as many epidemics of infection per hospital as do the general hospitals.

Dr DeLee has a great deal to say about "air-borne infection" and the deleterious influences at work in the general hospital. Apparently he believes that these mysterious influences are more potent than direct contact, since he ignores the fact that most maternities have no isolation quarters and that when they do they have no separate nursing staff to care for isolated cases. When a case of fever develops in the maternity division of a properly regulated general hospital, the patient and her baby are immediately removed to the medical or surgical wards in a different part of the institution, with a separate nursing personnel already established and functioning. This is physical separation and administrative separation carried out at once, without difficulty or embarrassment. When such a case develops in the average maternity hospital, the woman must either be simply isolated on the same floor with other maternity patients, without the benefit of a completely different nursing personnel, or be sent to another hospital as a case of puerperal sepsis. The psychologic resistance to this is, of course, tremendous. The admission that the hospital has a case of puerperal infection (with the necessity of plainly stating to the family that this patient cannot be kept in the same hospital with clean patients) is delayed from day to day, until the disease is clean cut and disastrous. In the meantime the contacts, both direct and indirect, are increasing and the chances that other patients will be contaminated are multiplied. Even an isolation pavilion does not dispel the thought that, if the case is not really puerperal sepsis, it is liable to become so if the patient is removed early to the infection pavilion. The general hospital has no such handicaps. The patient need only be placed in another part of the same building, not an infection pavilion, where a separate nursing force is already at work and functioning. No diagnosis of puerperal infection need be made

before the patient is transferred. If she has fever, that is sufficient reason for her removal, and the risk that she will become infected by such transfer is minimal as compared with specialized maternity hospitals.

It is the opinion of our group that the criterion suggested by Dr DeLee, viz., the "number of puerperal epidemics per hospital," is not a useful one. Neither is the classification of hospitals as specialized maternities and general hospitals accepting obstetrics of particular value. Our Cleveland tables show that the delivery mortality rates of these two types of institution are practically identical. In every instance the results depend on the management of the individual hospital, but there is no evidence of better delivery death rates in the specialized maternity hospitals.

The Cleveland Hospital Obstetrical Society does not desire to defend the hospital that treats maternity cases as a mere incident in its other work. Actual physical separation and entirely separate personnel are essential to safety. Isolated separate labor and delivery rooms are necessary. The laundry of the maternity division should never be mixed with that of the medical and surgical floors, so that sheets, pillow cases, and the like that have been used by infected surgical patients cannot be sent from the laundry to the obstetric floor. No hospital has the moral right, and none should have the legal right, to accept cases for delivery without making physical and administrative preparation for their safe care. We do contend, however, that the general hospital which makes adequate provision for the management and care of the obstetric patient under competent medical supervision is not only safe but has obvious advantages over the specialized maternity. The variety of its resources as to equipment and staff organization is likely to be much more complete. Lack of resources or carelessness in their use is inexcusable in any hospital when lives are at stake. If a hospital does not have adequate physical resources, it should not undertake the care of maternity cases.

The need is rather urgent that, in every large city, hospital obstetricians should organize themselves into a compact unit for the detailed study and classification of puerperal deaths. This subject should not be left to the pediatrician under the guise of child welfare, nor to the statistician who must accept written reports at face value. Obstetricians must themselves accept this responsibility for obtaining in detail the facts about each case, properly evaluating all the circumstances and classifying the reports accordingly. The group of obstetricians who have organized in Cleveland are learning much of value to themselves and hope soon to present valuable data to their colleagues. There has been entirely too much special pleading by those interested in fostering some particular conception on the profession. It will only be when there is a thorough study of the actual facts by a large group of disinterested obstetricians that the real merits of the problem will be determined.

THE CLEVELAND HOSPITAL OBSTETRICAL SOCIETY

A. J. SKEEL, M.D., President

S. C. RUNNELS, M.D., Secretary

THE EMBLEM OF MEDICINE

To the Editor—*THE JOURNAL* recently called attention to an infringement on the automobile insignia for physicians which it has been selling. The spurious emblem has two snakes entwined on the staff, instead of one. In 1931 an enterprising doctor presented a gold badge of office to the president of the Toronto Academy of Medicine as an official emblem portraying the sacred serpent being fed from a bowl. The official button of the American Medical Association is mostly snake-entwined staff. Why the snake and even so, why its continuance? Since the days of the Romans, the emblem of orthodox medicine has been the snake-entwined staff. Insignia are multum in parvo, but why continue to sail under such false colors?

What, then, should the insignia of medicine portray? We are living in a wonderful day and surely beyond our present possibilities, we must realize that the advanced thought being scrutinized critically by conservatism will be the advancement of tomorrow, that physiology will replace pathology, that the educated public has in mind "the maintenance of the structural integrity of the human body," that we must treat tendencies, not consequences, that nature works from within, and finally that the therapy which best supports and maintains function will accomplish most.

I wonder what a prize competition across America for a suitable emblem would bring forth? Some artist might line up the vitamins as a parade of the wooden soldiers, with room for more. Taking a different tangent, I could visualize Mr. Calory grading lettuce leaves and again suppose the sun kissing a biscuit. How about a solid phalanx of white corpuscles with daggers drawn standing four-square to Staphylo, Strepto, Diplo, and Pneumo? I hope no one suggests either malaria or maggots. I'm sure in the list would be a tray heaped up with tonsils old and young, interspersed with an odd appendix. If state medicine is in the offing, why not picture a galley slave smarting under the crack of the political whip?

After all, whatever the thought of the hour, the medical profession in all nations and all times might worthily be honored with the insignia of the Good Samaritan at the roadside, and the best that is in medicine as we enter 1933 can promise not only longer life but life more abundantly.

L. B. WILLIAMS, M.D., Toronto

GALACTOSE FOR DIABETIC PATIENTS

To the Editor—In THE JOURNAL, Nov. 19, 1932, appeared a communication by Dr. Harry Shay, which contained such incorrect interpretations of our report on galactose tolerance of normal and diabetic subjects (*J Biol Chem* 96:717 [June] 1932) that we find it necessary to submit the following rebuttal of Shay's statements.

Shay pointed out that, in our tests on normal and diabetic subjects in which 1 Gm. of galactose per kilogram of body weight was administered by mouth there occurred in the samples of blood collected one hour after ingestion an average drop of 36 mg. of fermentable blood sugar per hundred cubic centimeters for the normal subjects and an average increase of 22 mg. of fermentable sugar for the diabetic patients, making an average observed difference in fermentable blood sugar of 58 mg. per hundred cubic centimeters.

We object to the calculations made by Shay in the first place because they are mathematically incorrect, since they were calculated without taking into consideration the difference in the reducing powers of galactose and dextrose. We object further to Shay's figures because they were wholly unnecessary, as we published a complete mathematical analysis (table IV of our report) showing the amounts of fermentable sugar in each of the samples of blood collected from ten normal and ten diabetic subjects and called attention to the fact that there were increases in the fermentable sugar in the blood of the diabetic patients following galactose ingestion. We object still further to Shay's interpretation of our data because of the unsound comparisons he attempted to make. If he desired to examine our data with respect to fermentable sugar he should not have ignored the results we obtained when we fed fermentable sugar (dextrose). The most exact way to examine the tolerance of diabetic subjects for galactose as compared with dextrose (fermentable sugar) is to consider the response from the administration of both galactose and dextrose to the same patient on separate days, and not as Shay assumed to do by contrasting the results obtained by the administration of galactose only to different subjects.

The results we obtained following the ingestion of the same dosage of galactose and dextrose by the same patient afford striking evidence that the diabetic subject has a higher tolerance for galactose than for dextrose. Our report shows that, when dextrose was fed, the blood sugar curves showed typical diabetic responses with maximum elevations at the end of two hours, and when galactose was fed the total blood sugar curves did not go nearly as high and showed a sharp return toward the preingestion level at the end of the two-hour period. Following galactose ingestion the average maximum increase in blood galactose was 47 mg. per hundred cubic centimeters and the average maximum increase in total blood sugar was 87 mg. per hundred cubic centimeters. These figures mean that there was an average maximum increase in fermentable blood sugar of 40 mg. per hundred cubic centimeters following galactose ingestion in our series of diabetic patients. When the same dosage of sugar in the form of dextrose was fed, there resulted an average maximum increase in fermentable blood sugar of 155 mg. per hundred cubic centimeters in two hours (from table II of the data in our article). Assuming the criterion proposed by Shay, namely, the increase in fermentable sugar in the blood, it is to be noted that there was almost four times as great an increase in the fermentable sugar of the blood of our diabetic subjects when fed dextrose as when galactose was fed. Or assuming as criteria either the increases in total blood sugar or the increases in blood galactose as compared with the elevation of the blood dextrose, our data show a strikingly greater tolerance for galactose than for dextrose by diabetic patients.

The statements set forth by Shay concerning the importance of the liver in galactose metabolism are really arguments in favor of the premise he assumes to oppose. It certainly requires no demonstration at the present time to show that diabetes mellitus is a disease involving the pancreas and not the liver. Since it has been shown that the liver has an important role in the metabolism of galactose and the diabetic patient apparently has a normal glycogenic liver function, the question remaining for demonstration of the tolerance of the diabetic for galactose is what part the pancreas plays in the metabolism of this sugar. This is exactly what our report considered. The significant evidence presented by us was that (1) following galactose ingestion there was no greater galactosemia, and essentially no greater saccharemia in diabetic patients than occurred in normal subjects, (2) comparative tests of galactose and dextrose feeding to diabetic patients showed the usual intolerance for dextrose and an almost normal response to galactose, and (3) insulin is not involved in the anabolism of galactose.

The argument Shay makes that "galactose as such is not utilized as a source of energy by the animal economy" has no significance. It makes no difference whether galactose is metabolized as such or is converted to some other substance (probably glycogen) before undergoing catabolism. The essential fact remains that galactose is utilized, and there is plenty of evidence in the literature for this.

Since sending our paper to press there have appeared in the literature two reports which have an important bearing on this question. Kosterlitz and Wedder (*Klin Wchenschr* 19:553 [March 26] 1932) have reported that galactose fed to diabetic patients in doses of from 10 to 20 Gm. from two to four times daily is antiketogenic, is protein sparing, and results in less glucosuria than occurs when corresponding amounts of dextrose are fed. Deuel, Gulick and Butts (*J Biol Chem* 98:333 [Oct.] 1932) report Galactose has been demonstrated to possess a greater ketolytic action than glucose in the human, both on ketosis due to fasting and on that produced by an exclusive protein diet. This superiority is exhibited not only in the larger drop in ketonuria but also in the more prolonged decrease that results. Likewise there is some evidence

to indicate that a more pronounced nitrogen-sparing action follows the ingestion of galactose" These reports add further weight to the suggestion in our report "that galactose might be made a valuable adjunct to the diet in the clinical management of diabetes mellitus"

We fully realize that the way to settle such problems as these is by laboratory experiments and not by discussion But we claim the right to object to incorrect interpretation of our experimental work, and we maintain that such an important possibility as the improvement of the diet of the diabetic patient merits an attitude of open-mindedness Of course the possibility of galactose feeding to diabetic patients needs further proof We are studying this problem with depancreatized dogs, and clinical trials of galactose feeding are being made in clinics where careful biochemical control is available Galactose feeding to diabetic patients is still in the experimental stage, and until conclusive laboratory and clinical evidence on galactose feeding is produced, we seriously urge physicians not to consider the use of this sugar

JOSEPH H ROE, PH D,
AARON S SCHWARTZMAN, M D,
Washington, D C

ERGOTAMINE TARTRATE IN PRURITUS

To the Editor—In THE JOURNAL, February 4, page 328, Drs Ernstene and Banks record their experience with ergotamine tartrate as an antipruritic agent and refer to my clinical note (THE JOURNAL, Nov 14, 1931, p 1563) on the subject The lack of uniform results with this drug in the treatment of pruritus in urticaria and other dermatoses has already been recognized

It has been pointed out that ergotamine tartrate exerts its depressant action on the sympathetic nervous system, the tonus of which is heightened The prompt relief from pruritus obtained in patients with jaundice and azotemia suggested the existence of a sympathicotonia in these individuals The metabolic changes in the skin in these conditions provokes the increased nervous irritability

In my experience to date, and in that of physicians and clinics which has been brought to my attention, the claim for the drug has been confirmed In about 75 per cent of patients suffering with pruritus associated with jaundice or azotemia, treatment as described has brought relief I stress here that results may be expected especially in this selected group of patients with pruritus

S S LICHTMAN, M D, New York

INFARCTS OF THE KIDNEY

To the Editor—From reading the paper by J Dellinger Barney and E Ross Mintz entitled 'Infarcts of the Kidney' (THE JOURNAL, January 7), the reader would get the impression that no exact knowledge on the subject existed from the time of the classic contribution of Traube in 1856 until the paper of Dr Ashner in 1922 The authors point out that "the literature is comparatively scanty" In a paper entitled "Clinical Manifestations of Hemorrhagic Renal Infarct Review of Literature and Report of a Case," published in the *Archives of Internal Medicine* in April, 1908, I reviewed the then existing ten cases in the universal literature, to which I added my own case I may be pardoned an author's vanity in expressing the belief that my paper possesses an historical interest because it was the first in the English language and the first in American literature to deal with the subject Associated in the case were two brilliant names in American medicine—that of the late Dr Bertram W Sippy, who was the consultant and that of the late Dr John B Murphy, who was the surgeon Dr Everts Graham was the intern in the case and assisted in the postmortem examination In my

paper the views of Traube and of von Leube were presented, the clinical manifestations of infarcts were clearly described, and the possibility of a diagnosis in vivo was particularly stressed

A second paper dealing with histologic studies of the two kidneys was presented before the Chicago Pathological Society and subsequently published in the *Transactions of the Chicago Pathological Society*, Feb 8, 1909 The specimens were presented to the pathologic laboratory of Rush Medical College Later contributions have added more cases but nothing that has not already been clearly stated in the classic contributions of Traube and von Leube

GEORGE HALPERIN, M D, Chicago

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed Every letter must contain the writer's name and address, but these will be omitted, on request

SENSITIVITY TO COLD

To the Editor—A woman, aged 33, well developed and well nourished, whose blood pressure is 140 systolic, 70 diastolic, has retroflexion of the uterus She is irritable If she goes out in cold weather, her face and hands swell When she goes into the house, they return to normal Eating ice cream in the summer causes her tongue and lips to swell and something seems to choke her Putting her hands in cold rinse water causes them to swell to the water line Otherwise the patient is normal No laboratory tests have been done except on the urine Please omit name

M D, Illinois

ANSWER—Probably this patient is sensitive to temperatures between 5 and 15 C (41 and 59 F) wherever they are applied, although the exposed parts may be more tolerant than parts under the clothing, which are more protected from low temperatures The breathing of cold air affects the conjunctiva, nasal membranes and bronchial membrane just as cold of certain degree will affect the skin The drinking of cold water will affect the tongue, mouth, esophagus and stomach in the same way Exposure of a gross area of the skin to cold between 5 and 15 C will almost certainly cause a generalized shock reaction similar to pollen shock This is dangerous and necessitates the immediate use of epinephrine Accidental exposure to cold moist wind just above freezing, or swimming in cold water, is dangerous

Patients of this sort can be given relative tolerance to cold by rubbing increasing areas of skin with ice at frequent intervals This gives them localized and generalized tolerance and can be pushed to a point at which they can be comfortable if they avoid unnecessary exposure to cold

The patient should be acquainted with this condition, otherwise he is likely to get into a situation in which overexposure is unavoidable

In recent literature it is mentioned that the condition is more frequent in women than in men and that in some it seems to be connected with the pelvic organs In spite of this, the finding of a retroflexed uterus is probably unimportant

The patient should seek a warm climate to live in and avoid cold drinks and cold foods The first description of the condition appears in an article by W W Duke on "Urticaria Caused Specifically by the Action of Physical Agents" (THE JOURNAL, July 5, 1924, p 3), and there is a review of more recent literature on the subject by the same author in the *Archives of Otolaryngology* (November, 1932, p 721)

USE OF IODIDE OR COMPOUND SOLUTION OF IODINE

To the Editor—Where the iodides are indicated, is it not preferable to use compound solution of iodine (Lugol's solution) instead? I have been advised that this solution is less apt to cause iodism and does not possess the harsh taste of the iodides I would greatly appreciate your opinion on this matter Please omit name

M D New York

ANSWER—There is no doubt that the taste of compound solution of iodine (Lugol's solution) is a great deal harsher than that of iodide and that its irritative effects are likewise greater Compound solution of iodine is a solution of iodine (5 per cent) in a solution of potassium iodide (10 per cent) It may contain free hydroiodic acid There is reason to believe that in point of fact sodium or potassium iodide is capable of producing the

same effects as compound solution of iodine even in hyperthyroidism, as is attested by a number of observers. If this is the case, the administration of compound solution of iodine is a definite error in administration, especially in the very sensitive hyperthyroid individual. So far as can be determined, the reason for its use in this condition is merely historical. It happened to be first used for this purpose, and it seems that, in view of good effects secured by it, clinicians are averse to making the change, which probably should be made.

RECURRENT MASTOIDITIS

To the Editor—How often is it necessary to perform a secondary operation in infants who have had mastoidectomies for acute mastoiditis? Please omit name. M D New York.

ANSWER—It is difficult to quote accurate figures as to the number of recurrences of mastoid symptoms in infants who have had mastoidectomies performed previously for acute mastoiditis. Every otologist with large experience sees from time to time a breakdown of an apparently well healed scar following an acute attack of otitis media. The second attack of mastoiditis should be no more surprising than the first, and a previous operation should not be expected to prevent a new and fresh attack. If by the question was meant how often it is necessary to reoperate in infants following mastoidectomy because the first operation did not heal quickly enough and satisfactorily enough, it is true that from time to time procedures such as curettement of the wound, freshening the edges of the skin margins and resuturing are part of the experience of every operator.

ERYTHEMA NODOSUM

To the Editor—Please give the present status of the etiology, pathology treatment and other pertinent information you may have concerning erythema nodosum. I have been associated with Dr F C Pinkerton of the American Hospital at Guatemala in the treatment of several cases of the disease. We have been treating the cases with an autogenous vaccine made from the bacteria isolated from the blood stream. The bacteria were of the streptococcus group. The results have been satisfactory so far with the vaccine therapy in addition to the removal of the focus of infection. In our limited library facilities and our limited number of periodicals available we have not been able to find mention of this method of obtaining the causative organisms. Has this work been previously performed by other investigators? We are desirous of receiving your information at an early date in order that we may act accordingly in our desire to publish our results.

Director of Biological Laboratories W H GAUB, Guatemala.

ANSWER—These results in the isolation from the blood stream of an organism belonging to the streptococcus group in cases of erythema nodosum are in accord with the work reported by Rosenow (The Etiology and Experimental Production of Erythema Nodosum, *J Infect Dis* 16 367, 1915), who demonstrated diphtheroid-like streptococci in excised nodes in human cases, and who isolated from these nodes, from the blood and from the throat and infected teeth a pleomorphic, diphtheroid-like streptococcus which had elective affinity on isolation for the subcutaneous tissues of dogs, rabbits and guinea-pigs when injected intravenously. The streptococcus morphology became dominant on animal passage, and in the experimentally produced erythematous, hemorrhagic nodes this form was found in sections.

SEXUAL DESIRE AND POTENCY AFTER PROSTATECTOMY

To the Editor—What percentage of men retain sexual desire and potency after modern prostatectomy operations? The only definite information I have at hand is contained in a paper by Hinman (*Arch Surg* 4 154 [Jan] 1922) in which he relates that of fourteen patients six retained sexual desire after perineal prostatectomy, five had sexual intercourse and four of the latter had a seminal discharge. In a later series of twelve cases, normal sexual life was resumed in three.

J L KAINS M D Seattle

ANSWER—It is necessary to distinguish between sexual desire and relative and actual potency. Libido may be present without erection; erection may be produced allowing insertion of the penis without orgasm and ejaculation and finally the proper sexual act may be possible.

The value of available statistics is somewhat impaired by the fact that as a rule they are compiled by taking the patient's statements as their basis. The true state of affairs can be judged only by interviewing the female partner and by examining the ejaculatory product if it is available. Under such premises one comes pretty close to the truth by stating that about 25 per cent of the patients retain occasional sexual desire, 15 per cent show relative potency and true potency is maintained in 5 per cent.

POSITIVE SPINAL FLUID WASSERMANN TEST

To the Editor—Kindly inform me whether a positive spinal fluid Wassermann reaction can be obtained in any other condition than syphilis and if so, please inform me in what diseases.

MAXIMILIAN MALINA, M D, Chicago

ANSWER—Positive Wassermann reactions with spinal fluids in conditions other than syphilis are rare. Such reactions have been described in isolated cases of brain tumor, influenzal encephalitis and infectious meningitis. An examination of the League of Nations' Health Committee report of the Montevideo (1930) conference reveals three, one and one positive spinal fluid reactions, respectively, given in cases of dementia praecox and idiocy by three Wassermann methods in a group of 147 nonsyphilitic cases. A fourth Wassermann method, that of Wyler (also the Kahn reaction), did not give false positives in this group of cases. A comparison between blood serum and spinal fluid results at this conference indicates that even Wassermann methods that show a marked tendency toward false positive reactions with blood serum give but rarely such reactions with spinal fluid.

EFFECTS OF CANNABIS

To the Editor—I have been hearing about the smoking of cigarettes dipped into or medicated with fluid extract of Cannabis americana. I can find nothing about the use of the drug by addicts. What is its immediate effect? What are its late effects? What is the minimum lethal dose? In what way does it differ from or resemble muggles in its action? While in Louisiana I was told that the use of marihuana causes dementia. Is this true? Please omit name.

M D, Illinois

ANSWER—The effect of Cannabis americana is the same as that of Cannabis indica, and, of the effect of the latter, the books are so full that it is hardly necessary to detail them here. It must suffice here to say that cannabis, at the height of its action, usually produces hallucinations, with or without euphoria, and that these are followed by a deep sleep. Its most marked after-effect is the liability to the establishment of a craving for the drug, the habitual use of which undermines the intellectual qualities and the social value of the victim and leads to general physical deterioration. It is stated that smokers nearly always become imbecile in time. The minimum lethal dose is unknown, no fatalities having been reported in man. In view of the fact that one dose may kill one dog that has no marked effect on another, one must admit the possibility of a lethal effect on man. In view of what has been said, it must be admitted that "marihuana," which is merely another name for Cannabis indica, may cause dementia.

ALBUMIN IN URINE AFTER PROSTATIC MASSAGE

To the Editor—What is the significance of (1) urine, normal as voided but showing albumin directly after prostatic massage with no other abnormalities? (2) urine, normal as voided but showing albumin and bacteriuria after prostatic massage with no other abnormalities? Kindly omit name.

M D New York.

ANSWER—1 Urine, normal as voided, but showing albumin directly after prostatic massage, would obviously indicate that the source of the albumin is in the male secretions. The prostate and also the seminal vesicles contain albuminous secretion. A prostatitis or vesiculitis would produce a pyuria and bacteriuria as well as an albuminuria. In urethritis there may also be an albuminuria due to pus cells and bacteria.

2 Urine, normal as voided, but showing albumin and bacteriuria after prostatic massage, would indicate the presence of an acute or chronic prostatitis. In such cases gonorrhea and tuberculosis must always be considered and the specific organisms sought. The other causes are simple pyogenic infections with the staphylococcus, streptococcus, colon bacillus and diphtheroids.

SYNOVITIS WITH EFFUSION

To the Editor—For about three months a man aged 28 has had a chronic synovitis with effusion in one knee. There is slight pain but considerable effusion. He does not recall injuring the knee and states that it gradually began to hurt and swell. He has no fever at any time except after some vaccine treatment. What is the possible cause for this? I would appreciate some suggestions regarding treatment. He has already had heat rest, counterirritants and bacterial vaccines with practically no improvement.

M D Indiana.

ANSWER—The following etiologic factors should be considered and eliminated if possible: infection, injury, exposure, metabolic disturbance, occupation, allergy and neoplasia. The correspondent does not state whether the effusion is constant or intermittent. He does not state whether aspiration has been performed for diagnostic or therapeutic reasons. Under treat-

ment, one may suggest rest in bed, application of moist heat during the day and dry heat at night, with applications during the day of radiant heat, also gentle massage, diathermy and a splint. One of the most important considerations is the maintenance of tonicity of the quadriceps extensor muscle, which should be accomplished by means of active and resistive exercises and electrical stimulation. Diet may be important. A compression bandage may be used. Climate may be a factor. The effect of vaccine may be considered a reaction. If so, the dose should be cut to one half or one tenth. Vaccine should be given as a desensitizing measure, therefore, the smaller the dose, the better. There has been some interesting recent work done by Thomsen of Lincoln, Neb., on the use of Pregl's solution of iodine injected into the knee joint, for this condition.

PAIN IN THE NECK

To the Editor—I have a patient who has been unsuccessfully treated over a period of three years by several other physicians for a pain in his neck. He is 60 years old. There is a moderate hypertension. The pain begins at the seventh cervical vertebra and runs up the right side of the neck posteriorly then round the right side of the head above the ear, and then across the forehead. There is constant headache. Some soreness is also complained of in the muscles of the left side of the neck posteriorly. Moving the head sideways is quite painful but forward and backward movement is not. There is a slight papular eruption in the line of pain just anterior to and above the right ear. Please omit name.

M D, Michigan

ANSWER—The data supplied are insufficient. One would like to know more concerning the onset and whether or not there was an injury, focal infection, metabolic disturbance or exposure to extremes of hot and cold or dryness and moisture. One should know the result of an examination by means of anteroposterior and lateral roentgenograms of the cervical spine. No mention was made of syphilitic infection or the Wassermann reaction.

The first reaction to this question would lead one to a diagnosis of osteo-arthritis of the cervical spine with cervicobrachial neuritis. The importance of the eruption is questionable. As is well known, herpes may appear along the distribution of the nerves involved in neuritis.

Under treatment, one would suggest any or all of the following:

1 A search for foci of infection, especially in the teeth, throat, sinuses and the gastro-intestinal, genito-urinary and respiratory tracts.

2 A thick, cotton collar such as described by Schanz, which may be of real benefit.

3 The consideration of diet, medicine and vaccine therapy.

4 Recumbent treatment, including head traction with the head of the bed elevated.

5 Physical therapy including radiant heat, gentle massage and diathermy. If diathermy increases pain, it should be discontinued.

6 A brace or a cast.

ASCARIS INFESTATION

To the Editor—I have had a patient suffering from infestation with nematode ascarides under my observation for about three months. He passes from six to twelve parasites daily, which are about 2 inches in length and one fourth inch in width. They are flat and white in appearance. Examination of the feces reveals many ova, which are egg shaped and appear to have a definite smooth shell. I have given 4 grains (0.26 Gm.) of santonin in divided doses daily for a period of three days, followed each night by a saline purge. I have also administered 12 minims (0.75 cc.) of oil of chenopodium in divided doses daily followed by a saline purge or castor oil. Thus far my therapy has been ineffectual in eradicating the parasites. If you can suggest any form of treatment, I shall greatly appreciate it. *DORSEY S. LENZ, M.D., Midwest Wyo.*

ANSWER—Santonin is almost specific for *Ascaris* infestation. A dose of from 0.03 to 0.06 Gm, especially when given in castor oil in the morning, if no food is eaten for from two to four hours afterward, usually results in expulsion of the worms. If they are not expelled, another dose of castor oil should be given and the patient kept on a light diet the remainder of the day.

Though carbon tetrachloride is considered less reliable against *Ascaris* than oil of chenopodium or santonin, it might be tried in a dose of from 2 to 3 cc for an adult, given with 50 cc of a saturated solution of magnesium sulphate.

In view of the fact that the nematodes are round worms and the worms passed are described as flat the diagnosis might well be questioned and this might explain the failure of treatment, as tapeworm infestation requires different remedies from those used against the round worms.

CHRONIC CHOLECYSTITIS WITH STONE IN COMMON DUCT

To the Editor—A white woman, aged 52, 5 feet (152 cm) tall, weighing 110 pounds (50 Kg), has been under my care for a year and a half on account of attacks of what appears to be an acute biliary colic. She was operated on eight years ago, at which time surgical drainage was done. About six months later a cholecystectomy was done. She has had frequent attacks of colic since then. I saw her first in June, 1931, and from that time until December, 1931, she had attacks about two months apart. They are quite severe causing much vomiting. At the time her epigastrium and right hypochondrium are exceedingly tender to palpation. It required morphine sulphate, from $\frac{1}{4}$ to $\frac{1}{2}$ grain (16 to 32 mg), with atropine sulphate, $\frac{1}{100}$ grain (0.6 mg), hypodermically, to give relief. Following the attack in December, 1931, I instructed her to take tincture of belladonna, 15 drops three times a day before meals, as soon as she felt the first slight pain, which was a warning of the onset of another attack. She did this and until November, 1932, or nearly a year, had no difficulty. I have tried tincture of belladonna on four other patients in similar circumstances and it has worked well. Is there anything better to do for these people who haven't been given permanent relief by surgery? Is it possible that this patient is having stones form in the hepatic ducts or common duct? She is never jaundiced, and the stools are only moderately light in color at the time of the colic. Please omit name.

M D, Minnesota

ANSWER—The persistence of attacks of abdominal pain that are obviously biliary colic, following cholecystectomy, points to obstruction in the hepatic or common bile ducts. The cause of such obstruction is almost always one or more stones. It is generally held by surgeons that such stones do not form in the ducts following cholecystectomy but are overlooked at the time of operation. The possibility of operative or inflammatory damage to these ducts (hepatic, common) must, of course, also be considered in this patient, who has had two operations. It is probable that latent jaundice, as demonstrated by a high Van den Bergh test, could be shown to be present during the height of any severe attack. Belladonna does lessen the severity of such attacks and at times seems to control them. However, since there has been a lapse of eight years, it is very unlikely that this patient will obtain permanent relief from anything but surgical intervention. If this is not done, persistent cholangitis will ultimately cause serious harm to the liver.

IMMUNIZATION AND RELAPSE IN SCARLET FEVER

To the Editor—1 How common is the requirement to have pupils in hospital training schools immunized against scarlet fever? 2 What is the incidence of relapses in scarlet fever? I have seen two cases within the year the initial symptoms of sore throat, rash and fever have been repeated with marked intensity within a week of the initial infection. The second case occurred following the use of two bottles of scarlet fever antitoxin. The rash was not urticarial but punctate and typically scarlet rash with return of sore throat and tongue signs.

ROY J. WARD, M.D., Worcester, Mass.

ANSWER—1 The majority of training schools where pupil nurses receive training in contagious diseases require immunization against scarlet fever if Dick tests indicate susceptibility, and many hospitals where there is a large pediatric service also require it.

2 Less than 1 per cent. The statement that two "bottles" of scarlet fever antitoxin were used does not give information as to the dosage of antitoxin employed. Some health departments which put out scarlet fever antitoxin in bottles are distributing for therapeutic use doses of antitoxin no larger than the amount commonly employed for a prophylactic dose and considerably smaller than the usual therapeutic dose of scarlet fever antitoxin.

YEAST AS A LAXATIVE

To the Editor—In THE JOURNAL, Sept. 17, 1932, under the heading of Queries and Minor Notes, the statement is made that yeast is a laxative and that there is no essential difference, in their effects, between fresh or live yeast and dried brewers' yeast. The Fleischmann people make the claim that their yeast "softens the waste matter of the intestines," and the inference is that this is accomplished by reason of fermentation. The further inference is perhaps, that fresh yeast causes the formation of gas, which aids the process of evacuation. Dried brewers' yeast, lacking the fermentative quality, would therefore not operate in this manner. I should like to know whether the vitamin B complex in itself is a laxative irrespective of whether it is found in fresh yeast, dried brewers' yeast, wheat germ or other sources in sufficient quantities and whether there is authoritative information on dried brewers' yeast as a constipation corrective. If so where can I find the material? Please omit name.

M D, Illinois

ANSWER—Amy L. Daniels (*Am J Dis Child* 23:41 [Jan 1922]) produced diarrheal stools with killed yeast (from 3 to 10 Gm) in babies. On the whole, yeast is a rather uncertain laxative, and there are some authors who have not noted marked laxative properties when they used yeast as nitrogenous nutriment, though others have found that the looseness of the

bowel liable to be produced in some cases interfered with the nutritive value of the yeast. Yeast has even been used in cases of diarrhea with alleged benefit. There is general agreement that, in the constipation of vitamin B deficiency, yeast—whether dried or fresh—is especially efficacious.

ARTHRITIS DEFORMANS IN AGED

To the Editor—A woman patient aged 81, has had a steadily advancing case of arthritis deformans for ten or twelve years. Practically all the joints are now immobilized though she has partial use still of her hands and arms so that she is able to feed herself and do a few other things with difficulty. Treatment has been mainly palliative, except that diathermy was given at frequent intervals for a year, apparently without effect. For the intermittent pain in the joints I use dry heat, gentle massage and counterirritants locally with sedatives by mouth, usually phenobarbital or a related barbitol. At her age (she is much afraid of pain and is opposed to any strenuous methods of treatment) and considering the chronicity of the condition is there much hope of arresting the advance of the process to the joint so as to preserve what little motion she now has? Is there anything further than what I have mentioned that could be done to control pain? Please omit name.

M D, Massachusetts

ANSWER—Diathermy is not always helpful in these cases, and in some it is actually harmful. There is not much hope of arresting the advance of the process in the joint, although this statement must be made with reservations. The various factors that should be considered in the treatment are the clearing up of foci of infection, the application of moist, dry and radiant heat, fresh air and sunshine—which may necessitate change of climate, the use of ultraviolet radiation, small doses of acetylsalicylic acid and amidopyrine and vaccines. One should attempt to determine the smallest dose that will keep the pain under control. This may necessitate hypodermics every four days, which period can be lengthened to seven, ten or fourteen days rather than change the dose of the vaccine.

DELAYED DESCENT OF TESTIS

To the Editor—A boy aged 11 has bilateral migrating testicles. His parents have noticed the condition for only the past two or three years and state that he was apparently normal up to that time. At present the testes are firm and about the size of small lima beans. They can be pushed into the scrotum easily but on release of pressure immediately return to the lower part of the inguinal canal. The child is normally developed physically and mentally. Can the condition be corrected without surgical intervention by means of a truss or other support? If a truss is worn for a year or more will the testes again be drawn up on removal of the truss? What is the prognosis as to sterility at the present time? Will a testis develop normally if it is possible to keep it in the scrotum with a truss? Please omit name.

M D Illinois

ANSWER—One important fact has been omitted: whether the child has any evidence of hernia. Granted that there is no hernia on either side, there would be no reason to advise a truss. It has been well established that when the testes can be readily pushed into the scrotum they will develop normally and should migrate to the scrotum within the next three or four years. A truss will not hasten the descent. Although the testes would seem to be a trifle smaller than normal at the present time, they will probably develop rather rapidly toward puberty and there is no reason to suspect sterility. Should a testis remain permanently in the inguinal canal it will not develop spermatozoa, as has been shown experimentally by Moore.

ONYCHOMYCOSIS

To the Editor—A patient aged 40 whose general health is good has an ulceration surrounding and beneath the nails of the third, fourth and fifth fingers. The Wassermann and Kahn reactions are negative. All foci of infection have been eliminated. A diagnosis of onychomycosis has been made by several physicians and concurred to by a dermatologist. Please advise proper treatment. Please omit name. M D Wisconsin

ANSWER—For onychomycosis Whitfield's ointment (6 per cent of salicylic acid and 12 per cent of benzoic acid in petrolatum or ointment of rose water) applied once daily has cured some cases and has the advantage of not discoloring the nails. Roentgen rays unfiltered or lightly filtered through aluminum, one-fourth erythema dose once a week for from eight to twelve doses clear up many cases. A weak solution of iodine 1:500 in 2 per cent water solution of potassium iodide may be used as a wet dressing or bath several times a day. If these measures fail the nail can be removed surgically and the wound dressed with 5 per cent iodine ointment for one week, then with boric acid ointment for the remainder of the time. The nail grows out again in about five months. The condition is discussed by G. C. Andrews (Diseases of the Skin, Philadelphia W. B. Saunders Company 1930 p. 577).

USE OF LEMON JUICE FOR ACIDIFYING MILK IN INFANT DIET

To the Editor—When lemon juice is used to acidify milk for infant feeding will there be an adequate amount of vitamin C in the milk so prepared that orange and tomato juice may be omitted from the diet? I have a patient who has considerable gastric disturbances when orange or tomato juice is given even in small amounts. Is lemon juice or citric acid often used to acidify evaporated milk? Please omit name.

M D, Georgia

ANSWER—If lemon juice in sufficient quantity is added to the milk formula, the infant may receive an adequate amount of vitamin C to protect him against scurvy. Orange juice and tomato juice may then safely be omitted from the diet.

The antiscorbutic vitamin is probably the least stable of all, being easily destroyed by moderate degrees of heat, and is also readily damaged or destroyed by drying. Vitamin C is also sensitive to aging, particularly when it is subjected to an alkaline or neutral medium. It has been shown that lemon juice, if stored in a cold place for two weeks, would lose much of its vitamin C potency. It would seem, then, that if fresh lemon juice in sufficient amount is added to the daily formula and not subjected to too great heat, a sufficient antiscorbutic potency will be present to protect the infant against scurvy.

In a recent article, Oscar Reiss (*Arch. Pediat.* 49:170 [March] 1932) reports the successful use of lemon juice in evaporated milk in a series of infants under 1 year of age.

POSSIBILITY OF DEFORMED CHILD AFTER CURETTEMENT OF PREGNANT UTERUS

To the Editor—Two months ago a patient was curetted for uterine bleeding which began thirty-four days after the last regular menstrual period ceased. A few clots and endometrium were removed from the uterus after which the bleeding stopped. Without having an intercourse since the operation the patient is now about three and one-half months pregnant. Do you think there is any likelihood of the mother having a deformed baby as a result of the operation? Please omit name.

M D, Georgia

ANSWER—Accidents such as the one described have occurred many times. In nearly all instances the fetuses whether expelled prematurely or delivered at full term, have been normal. In these cases the gestation continues after the curettage because the ovum escapes the process of scraping. If the ovum is damaged, it is nearly always expelled. Such accidents rarely occur in a gestation with a duration of more than five or six weeks because after this time the fetal sac is too large to be missed except through gross carelessness. If, in the case cited, the pregnancy was only from twenty to twenty-eight days old at the time the curettage was performed, it could easily have been missed during the operation. The ovum was undoubtedly unharmed in this case because little tissue was obtained. Hence there need not be any fear of a deformed baby as a result of the operation.

ABSORPTION OF EPINEPHRINE AND EPHEDRINE IN THE STOMACH

To the Editor—I am reviewing the literature on sinus disease in children. I have been using diluted solution of epinephrine (from 1:4000 to 1:8000) in physiologic solution of sodium chloride. To assist me will you please give me the following information: What is the fate of the epinephrine hydrochloride solution after its gravitation into the stomach? Is any of it absorbed or is it destroyed? Similarly the fate of the ephedrine sulphate solution. Please omit name.

M D New York

ANSWER—When swallowed, epinephrine produces practically no effects. It usually does not pass through the alimentary mucosa though, in exceptional instances, marked reactions may occur. Ephedrine on the other hand, is absorbed and produces its systemic effect even when given by stomach.

DOSAGE OF CAFFEINE

To the Editor—I should like to ask about the dosage of caffeine. The teaching was that the dosage is from 1 to 2 grains and that 4 or 5 grain doses had caused serious poisoning. Today some men inject intravenously with impunity 15 grains of caffeine at one time and little is heard about caffeine poisoning. Please inform me what the most desirable dose of caffeine is for quick stimulation according to modern research. Please omit name and address.

M D California

ANSWER—The doses given in the textbooks are merely average doses. In view of the fact that tea drinkers may take 0.6 Gm. of caffeine daily, a dose of 1 Gm. or 15 grains would not be excessive for "quick stimulation" excepting that it may, along with this, produce restlessness and insomnia.

EFFECTS OF ELECTRIC WELDING ON BLOOD

To the Editor—Will you kindly give me information concerning the effect of the occupation of electric welder on the blood? Just what are the reasons of insurance companies for considering this occupation extra hazardous? Please omit name

M D, Wisconsin

ANSWER—Actual experience on the part of insurance companies has revealed that death rates among electric welders are well above those for the working population in its entirety

A number of hazards are associated with electric welding work. Among others are electric currents, chemical rays, leading to intra-ocular inflammation and dermatitis, metal fumes, notably lead, and hampered vision at the end of the work period, owing to previous exposure to intense light. Skin cancers are said to be high in this occupation. Also respiratory diseases, many of which are related to metal fumes, which serve as irritants to the respiratory tract.

The occupation of electric welding, in the absence of electrocution, is not known to pave the way for any specific changes in the blood. If however, such work involves exposure to lead or arsenic and their corresponding diseases are developed, characteristic changes in the blood may take place, such as the anemia and the basophilia of lead poisoning.

Elaborate protective devices are commonly provided the electric welder, notwithstanding which some risks apparently exist.

USE OF DICK TEST AND IMMUNIZATION FOR SCARLET FEVER

To the Editor—Please give the present status of scarlet fever in regard to prophylaxis and treatment. Is it advisable to use the Dick test in all cases before giving prophylactic treatment?

NEVIL M GARRETT, M D, Brodhead, Ky

ANSWER—Active immunization against scarlet fever is in general use. The employment of scarlet fever antitoxin in the treatment of scarlet fever is generally recommended. It is advisable to use the Dick test before immunizing against scarlet fever.

EFFECTS OF WATER ON DIGESTION

To the Editor—Has any experimental work substantiated the claim that the drinking of water in small amounts throughout the day has a more beneficial effect on nutrition than the drinking of the same total quantity in comparatively large amounts? Please omit name.

M D, Minnesota.

ANSWER—Experimental work designed to answer the specific question has not been done. Older work seems to show that the ingestion of large quantities of water promotes digestion (Hawk) partly by dilution of the blood (Sutherland, Ivy), partly by throwing into action (by increased intragastric pressure) the mechanical phase of gastric secretion (Ivy).

USE OF QUININE AS PROPHYLACTIC—CHLORBUTANOL AS PRESERVATIVE

To the Editor—1. It is customary for white people in this country (West Africa) to take a prophylactic dose of quinine once a day. Is there any reason to believe that the sulphate is more deleterious to health than the hydrochloride? 2. Is there any objection to adding a small amount (0.5 per cent) of chlorbutanol as a preservative to a solution of antimony and potassium tartrate for intravenous injection? Or does antimony and potassium tartrate itself decompose, rendering it advisable to prepare a fresh solution for each day's use?

H L BURKE, M D, Lassa, Nigeria, West Africa

ANSWER—1 No

2 No. It may help in the preservation of the solution.

USE OF TRYPARSAMIDE

To the Editor—Have you any information regarding the subcutaneous administration of tryparsamide? It cannot be given to the patient intravenously and I am afraid of unpleasant tissue reactions. The manufacturers apparently have no data as to its administration subcutaneously. Do you think I can safely give it? Please omit name.

M D, New York

ANSWER—Authorities do not advise using tryparsamide subcutaneously, nor is it well tolerated by intramuscular injection. This route of administration was tried at first in using this drug, but it was found to be somewhat irritating and if used in the usual concentration, that is, 3 Gm in 10 cc, sloughing of tissue may result. In one case an abscess formed. When it is used in a more dilute solution 10 per cent or less, it is not irritating but the bulk of fluid becomes uncomfortably large for intramuscular use. Used intramuscularly, it is somewhat irritating but not unsafe. Its therapeutic effect is practically the same as by intravenous administration.

Council on Medical Education and Hospitals

COMING EXAMINATIONS

ALASKA Juneau, March 14 Sec, Dr Harry C DeVighe, Juneau
AMERICAN BOARD FOR OPHTHALMIC EXAMINATIONS Milwaukee, June 12 Sec, Dr William H Wilder, 122 S Michigan Blvd, Chicago
AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY The written examination will be given in cities of the United States and Canada where there is a Diplomate who may be empowered to conduct the examination, April 1. The general oral, clinical and pathological examination will be held in Milwaukee, June 13 Sec, Dr Paul Titus 1015 Highland Bldg, Pittsburgh
AMERICAN BOARD OF OTOLARYNGOLOGY Milwaukee, June 12 Sec, Dr W P Wherry, 1500 Medical Arts Bldg, Omaha
COLORADO Denver, April 4 Sec, Dr Wm Whitridge Williams, 422 State Office Bldg, Denver
CONNECTICUT Regular Hartford, March 14 15 Endorsement Hartford March 28 Sec, Dr Thomas P Murdock 147 W Main St, Meriden Homoeopathic New Haven, March 14 Sec, Dr Edwin C M Hall, 82 Grand Ave, New Haven
IDAHO Boise, April 4 Commissioner of Law Enforcement, Hon Emmitt Pfost, Boise
ILLINOIS Chicago, April 11 13 Superintendent of Registration, Mr Paul B Johnson, Springfield
MAINE Portland, March 14 15 Sec, Dr Adam P Leighton, Jr, 192 State St, Portland
MASSACHUSETTS Boston, March 14 16 Sec, Dr Stephen Rushmore 144 State House, Boston
MINNESOTA Basic Science Minneapolis, April 4 5 Sec, Dr J C McKinley, 126 Millard Hall, University of Minnesota, Minneapolis
MONTANA Helena, April 4 Sec, Dr S A Cooney, 7 W 6th Ave, Helena
NEW HAMPSHIRE Concord, March 16-17 Sec, Dr Charles Duncan, Concord
NEW MEXICO Santa Fe, April 10 Sec, Dr P G Cornish, Jr, 221 W Central Ave, Albuquerque
OKLAHOMA Oklahoma City, March 14 15 Sec, Dr J M Byrum, Shawnee
PUERTO RICO San Juan, March 7 Sec, Dr O Costa Mandry, Box 536, San Juan
RHODE ISLAND Providence April 6 7 Dir, Dr L A Round, 319 State Office Bldg, Providence
TENNESSEE Memphis March 23 24 Sec, Dr A B DeLoach, Medical Arts Bldg, Memphis
WEST VIRGINIA Charleston March 14 Sec, Dr W T Henshaw, State Health Department, Charleston
WISCONSIN Reciprocity Milwaukee, April 11 Sec, Dr Robert E Flynn, 401 Main St, La Crosse

Mississippi Reciprocity Report

Dr Felix J Underwood, secretary, Mississippi State Board of Health, reports 9 physicians licensed by reciprocity with other states at a meeting held in Jackson, Dec 12, 1932. The following colleges were represented:

College	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
Howard University College of Medicine	(1931)		Georgia
Emory University School of Medicine	(1928)		Georgia
University of Louisville School of Medicine	(1928)		Kentucky
Tulane Univ of Louisiana School of Med	(1925), (1931, 2)		Louisiana
(1931) Tennessee			
Meharry Medical College	(1931)		Tennessee
University of Tennessee College of Medicine	(1931)		Tennessee

Tennessee March Examination

Dr Alfred B DeLoach, secretary, Tennessee State Board of Medical Examiners, reports the written examination held in Memphis, March 23-24, 1932. The examination covered 8 subjects and included 64 questions. An average of 75 per cent was required to pass. Thirty-two candidates were examined, all of whom passed. The following colleges were represented:

College	PASSED	Year Grad	Number Passed
University of Tennessee College of Medicine	(1932 31)		31
Baylor University College of Medicine	(1930)		1

Puerto Rico September Examination

Dr O Costa Mandry, secretary, Board of Medical Examiners of Puerto Rico, reports the written and practical examination held in San Juan, Sept 6, 1932. The examination covered 19 subjects and included 90 questions. An average of 75 per cent was required to pass. Eight candidates were examined, all of whom passed. The following colleges were represented:

College	PASSED	Year Grad	Per Cent
George Washington University School of Medicine	(1932)	82 7	83 1
University of Louisville School of Medicine	(1931)	77 2	
Harvard University Medical School	(1932)	82 3	

BOOK NOTICES

VOLUME 100
NUMBER 8

Temple University School of Medicine
Medical College of Virginia
Dalhousie University Faculty of Medicine

(1932) 77 8, 80 2
(1931) 81 6*
(1932) 82 6*

Dr Costa Mandry also reports 3 physicians licensed by reciprocity from August 27 to November 10. The following colleges were represented

College
Columbia University College of Phys. and Surgs
Long Island College of Medicine
Woman's Medical College of Pennsylvania

* License withheld pending payment of fee.

Year Reciprocity
Grad with
(1924) New York
(1931) New York
(1931) New York

Book Notices

Practical Obstetrics for Students and Practitioners. By P Brooke Bland M.D. Professor of Obstetrics Jefferson Medical College Philadelphia. Assisted by Thaddeus L. Montgomery M.D. Associate in Obstetrics Jefferson Medical College Philadelphia. Cloth. Price \$8. Pp 730 with 516 illustrations. Philadelphia F. A. Davis Company 1932.

When the books written by Williams and DeLee cease to be revised, Bland's book will undoubtedly rank among the leaders, for it is worth while. It was "compiled with the object of having it fill an important place between the *large* work and the *small* manual" (author's italics) but the book contains 730 pages. The arrangement of the book is similar to that of other textbooks on the subject. The authors have included all the new contributions to obstetrics, such as the improved hormone tests for pregnancy and obstetric physiology. It is unfortunate that mention is made of veratrum viride in the treatment of eclampsia, because this is a dangerous drug, which has fallen into almost complete desuetude. Another dangerous procedure which the authors not only describe but illustrate is Schultze's (swinging) method of artificial respiration of the new-born. This procedure was long ago condemned by leading obstetricians. The illustration on page 435 of a case of dystocia, dystrophia syndrome is far from typical of this condition. For the surgical induction of labor, the insertion of a bougie is preferred. No mention is made of rupture of the membranes, a method one time severely condemned but recently used successfully and praised at such conservative clinics as the Johns Hopkins. The authors are not yet convinced of the superiority of the cervical cesarean section for clean cases as well as for those grouped as suspicious but they add, "we may come to adopt the latter (cervical) operation as the preferential plan in nearly all instances." In spite of the few defects, the book is well written and beautifully illustrated, though the reproductions of most of the roentgenograms are poor. The chapter on obstetric jurisprudence is well worth reading.

Facial Growth in Children With Special Reference to Dentition. Part I by Corliss Smyth. Part II by Matthew Young. Medical Research Council Special Report Series No 171. Paper. Price is 6d. Pp 83 with illustrations. London His Majesty's Stationery Office 1932.

"The data on which this report is based are the records of measurements of about twenty characters of the face in a series of approximately 1,400 school children 600 boys and 600 girls at ages of 8 to 14 years having normal occlusions, also 100 boys at the ages of 9 and 10 years from the same school taken at random and finally a group of 100 children from 2 to 5 years of age taken from the Welfare Clinic. The many tables of data and the standards derived from them are offered as a basis for the study of abnormal development of the face and jaws. Of the many graphs prepared six examples have been reproduced to illustrate the type of growth exhibited by the selected characters as the age increases from 8 to 14 years. The figures for the mean measurements of the length of the dental arch at the successive ages supply ample confirmation of the conclusion reached by John Hunter, Tomes and Boll that after complete eruption of the milk teeth the alveolar arch of the human jaw primarily occupied by them does not increase in length. For the purposes of comparison the data are of value only to those equipped with the same types of instruments and used to measure the characters of the face selected by the authors. Facial growth is a complicated phenomenon which at present is being studied critically by other investigators. Not only is this true but methods and material are receiving just as critical consideration. From this point

of view one may question the ultimate or even the present value of these data except to the individuals or groups intensively engaged in this type of research.

Classic Descriptions of Disease With Biographical Sketches of the Authors. By Ralph H. Major. Professor of Medicine University of Kansas School of Medicine. Cloth. Price \$4.50. Pp 630 with 127 illustrations. Springfield Ill. & Baltimore Charles C. Thomas, 1932.

The nucleus of these "classic descriptions of disease" were collected by Dr. Major "because of personal interest in the subject and partly for use in teaching." The appearance of Long's Readings in Pathology and Fulton's Selected Readings in the History of Physiology suggested the expansion of the "descriptions" until they eventually reached the present form. The selections for the most part are restricted to the field of clinical medicine (exclusive of the neurologic field) and under the headings of infectious diseases, diseases of metabolism, lead poisoning, diseases of the circulatory system, diseases of the blood, kidney diseases, respiratory diseases, deficiency diseases, allergic diseases, and diseases of the digestive tract. As the title states, there are biographic sketches of the authors. Dr. Major has taken great pains to compile a truly representative selection of quotations from the world's leading medical benefactors by intensive work of his own and by acquiring a considerable amount of expert advice and criticism. A commendable achievement is the result. This book should be accessible to every real physician for perusal during such loose moments as he can spare from practice. The publisher is to be commended again for his probable financial sacrifices in fostering the cultural side of medicine. The present volume as well as the volumes by Long and Fulton would make ideal and treasured gifts for any medical man.

Intracranial Pyogenic Disease. A Pathological and Clinical Study of the Pathways of Infection from the Face, the Nasal and Paranasal Air Cavities. By A. Logan Turner M.D. LL.D. FRSE Consulting Surgeon Ear and Throat Department Royal Infirmary of Edinburgh and F. Esmond Reynolds M.D. D.T.M. & H. M.R.C.P. Superintendent of the Laboratory of the Scottish Asylums Pathological Scheme. Cloth. Price 12/6. Pp 271 with 82 illustrations. Edinburgh Oliver & Boyd, 1931.

The studies which form the main excuse for this book have involved a stupendous amount of work in cutting serial sections, gross and microscopic, of many brains, together with the contiguous skull and soft tissues. It was the hope of the authors that in this manner they might add to our knowledge of the manner in which intracranial pyogenic diseases arise. The microscopic details and case reports, which are presented in tiresome and excessive detail, make up the bulk of the presentation. Nor is it possible to believe that anything of material value has been added by the microscopic investigations. From clinical and gross pathologic studies it is well known that pyogenic infections of the brain arise either by direct extension of contiguous infections or through the blood vessels, whether venous or arterial. As a matter of fact, the pathways of infections into the brain from venous sinuses or contiguous tissues are much better and more safely determined by gross than by microscopic studies. By the latter the perspective is all too frequently lost. The diagnostic features of sinus thrombosis and cerebral infections are well presented and in much more readable form, but even here nothing new has been added. There seems to be little reason for presenting investigations of this character in book form.

The Physiology of Large Reptiles With Special Reference to the Heat Production of Snakes, Tortoises, Lizards and Alligators. By Francis G. Benedict. Director Nutrition Laboratory, Carnegie Institution of Washington (Carnegie Institution of Washington Publication No 425). Paper. Pp 539 with 106 illustrations. Washington D.C. Carnegie Institution of Washington 1932.

After an account of the methods of study and the results obtained there follows a discussion of a "comparison of metabolism of cold-blooded animals with that of warm-blooded animals, cell temperature of which has been lowered below 37° to approximately that of cold-blooded animals" (p. 417). The monograph concludes with this statement: "If our research serves no more than to point out to students in comparative physiology some of the intermediary phases that may occur between the lowest of the cold-blooded organisms and the highest of the warm-blooded organisms (man) it has been worth while. The results of this painstaking and at times dangerous research can be said to be of use or interest only to special (laboratory) students of metabolism."

Lehrbuch der Mund und Rachenkrankheiten Herausgegeben von Josef Berberich. Paper. Price 53 marks. Pp 587, with 213 illustrations. Leipzig: Georg Thieme, 1932.

This volume covers the field of the diseases of the mouth and throat, including tumors but excluding those produced by injury. It is the joint product of fourteen authors, a division of labor that enhances the value of the work but which introduces some variation in the form and arrangement of the subject matter. There is an adequate index and each section is followed by a limited list of references to the literature. The illustrations are well chosen and clearly reproduced on good paper. The sections on the manifestations of systemic diseases in the mouth and throat and the mouth lesions of skin disorders are unusually complete and cover fields that, as a rule, receive but scant attention in the American textbooks on diseases of the mouth. The chapter on the bacteriology of the mouth is conspicuous because of the absence of names such as *B. acidophilus* and because of the presence of others relatively unfamiliar in the English literature. On the other hand, it includes a well written discussion of the mouth as a focus of infection. Occasional statements are encountered that are not in harmony with the best modern practice, such as (page 321) "Therapy of fibrous epulis consists in radical excision including the base, and as rule including the tooth adjacent thereto." Of course, it is rarely necessary to extract the tooth in the treatment of this form of epulis. This book is a valuable addition to the literature on mouth diseases and, together with the Sonntag-Rosenthal textbook on surgical conditions of the mouth and jaws, covers the whole range of this field in an adequate and scholarly manner.

Outline of Preventive Medicine for Medicinal Practitioners and Students Prepared under the Auspices of the Committee on Public Health Relations, New York Academy of Medicine. By 24 Contributors. Editorial Committee: Frederic E. Sondern, Chas. Gordon Heyd and E. H. L. Corwin. Second edition. Fabrikoid. Price, \$5. Pp 462. New York: Paul B. Hoeber, Inc. 1932.

The appearance of a book about preventive medicine ought not to be noteworthy because the volume happens to be written by physicians, yet that is exactly the situation. There have been books in plenty about preventive medicine, written by every variety of doctor except doctors of medicine. This volume is the work of twenty-four contributors whose names are well known to the medical profession, and its sponsorship by the academy of medicine in our largest metropolitan center is significant of the trend of the times. Preventive medicine is coming back home where it belongs, in the hands of the medical profession. In this edition new chapters have been added, dealing with the private physician and the health authorities, the dentist and oral hygiene, and preclinical medicine and hygiene—all significant topics. These chapters add a great deal to the usefulness of the volume. For the practitioner, the health officer, the public health nurse and the social worker, the volume is an excellent guide to preventive medicine in its broadest aspects. It is not suitable, however, for placing in the hands of enlightened lay persons, unless they may happen to be engaged in scientific pursuits. It is not written for the comprehension of the lay person with education centered in liberal arts and with only the vaguest notions of science. The book is broad in scope, concise in treatment, authoritative, conveniently arranged, and easy to read. It is well indexed. The format is attractive. If it has the wide distribution it merits, it should exert a beneficial influence on the public health through the medical profession.

Les abcès du poulmon Par Michel Léon-Klindberg, médecin des Hôpitaux de Paris et Robert Monod, chirurgien des Hôpitaux de Paris. Avec la collaboration d'A. Soulas, assistant d'oto-rhino-laryngologie à l'Hôpital Laennec. Paper. Price 55 francs. Pp 322, with 119 illustrations. Paris: Masson & Co. 1932.

This well illustrated monograph deals with the history, pathologic anatomy, etiology, clinical forms, complications, diagnosis and various types of treatment of pulmonary abscess. The illustrations include drawings and numerous reproductions of photomicrographs and roentgenograms—the latter with and without contrast medium drawing and illustrations of operative procedures and photographs of patients. Sixteen case reports, a recent bibliography and an index are appended. The authors state that their opinions and conclusions are based chiefly on their personal experience with 150 cases during a period of

more than ten years, but their topical discussions include numerous citations and discussions of authoritative contributions to the world's literature. The introduction contains some interesting observations on the increased incidence of pulmonary abscess. All forms of treatment, medical and surgical, are discussed rather impartially, but the authors set forth their own views in a concluding chapter. The monograph is a notable contribution to the subject of pulmonary abscess.

Manual of Clinical and Laboratory Technique By Hiram B. Wells, A.B., M.D., F.A.C.P. Associate Professor of Medicine, College of Medicine, University of Cincinnati and Raphael Isaacs, A.M., M.D., F.A.C.P., Associate Professor of Medicine, Assistant Director of the Thomas Henry Simpson Memorial Institute for Medical Research, University of Michigan. Ann Arbor. Fourth edition. Cloth. Price \$1.50. Pp 117, with one illustration. Philadelphia & London: W. B. Saunders Company, 1932.

The data in this manual were compiled with the idea that the book might be used as a clinical and laboratory guide. The work in the present edition has been entirely revised and new facts have been added. A convenient addition is a complete table on the nutritive value of foods. The book is a condensed yet comprehensive presentation of clinical and laboratory data of particular interest to the student or intern. Enough essential facts are presented to make it practical, and it will serve as a workable aid in the systematic study of the individual patient.

History of the Royal Hungarian Francis Joseph University of Sciences, Founded at Kolozsvár in 1872 and Reopened at Szeged in 1921 Published on the Occasion of the Fifteenth Anniversary of the Foundation of the University, Szeged, June 20, 1922. Paper. Pp 20, with illustrations. Budapest: Franklin Society Press [n.d.]

The occasion of writing this brochure was the formal opening, amid due solemnities, of the university at Szeged, Oct. 9, 1921. Seven full page illustrations accompany the text. The early history of university instruction or attempts in that direction in Transylvania are recounted from 1541 on. Religious and political difficulties interfered with the natural evolution of this school of higher learning. Its vicissitudes are noted chronologically. May the development of the institution be more peaceful in the future.

A Textbook of Biochemistry for Students of Medicine and Science By A. T. Cameron, M.A., D.Sc., F.I.C., Professor of Biochemistry, Faculty of Medicine, University of Manitoba. Third edition. Cloth. Price \$4. Pp 548, with 15 illustrations. New York: Macmillan Company, 1931.

The third edition of this comprehensive textbook, like the earlier editions, is a good presentation of the more important biochemical contributions bearing on medical science. It is thoroughly revised and somewhat enlarged by the addition of new material to previous chapters and the inclusion of new chapters on internal secretions, muscular activity, and tissue respiration. The additions are well presented, if one considers the great mass of material covered in the discussion. It would seem desirable to present more critical chemical information on the chemistry of the carbohydrates, lipins and proteins and their behavior toward reagents than the rather limited treatment found in this otherwise admirable work.

Die konservative Behandlung entzündlicher Genitalerkrankungen der Frau Von Priv.-Doz. Dr. Gustav Döderlein, Oberarzt der Universitäts-Frauenklinik der Charité, Berlin. Therapie in Einzeldarstellungen. Wissenschaftliche Grundlagen und praktische Anwendung. Herausgegeben von Prof. Dr. R. von den Velden und Priv.-Doz. Dr. P. Wolff. Boards. Price 6.50 marks. Pp 117, with 7 illustrations. Leipzig: Georg Thieme, 1932.

Döderlein, who is associated with the gynecologic clinic of the Berlin Charité, presents a monographic review of genital inflammations. The monograph is divided into three parts. In the first part the author discusses etiology, pathogenesis and diagnosis of genital infections. In the diagnosis of gonorrhea he mentions the vulnerability of the vagina of the child, of the pregnant woman and of the senile woman. The sedimentation test (Linzemeier technique) is stressed as an important procedure in the diagnosis and prognosis of inflammatory adnexal disease. The second part of the book deals with the management of the nonspecific genital inflammations; there is a scholarly differential diagnosis of pruritus vulvae including detailed description of such unusual conditions as *ulcus vulvae acutum* and *ulcus vulvae chronicum* (esthiomene). The author gives only passing mention to *trichomonas vaginitis* and maintains the opinion that the parasite is nonpathogenic. However,

in the presence of trichomonas, he advises treatment with silver nitrate and boroglycerin. The third part of the treatise deals with the special management of gonorrhea and tuberculosis of the genitals. The conservative treatment of gonorrhea is stressed. The difficulty and at times impossibility of diagnosing genital tuberculosis is emphasized. In from 80 to 90 per cent of cases of genital tuberculosis the tubes are involved, and in half of these there is an associated tuberculous endometritis. The author advocates roentgen treatment for genital tuberculosis, regardless of surgery. Less than a sterilizing dose is advocated on the basis that a slight destruction of the tuberculous granulations causes absorption and stimulation of immunity. Castration doses of x-rays are advocated only in cases associated with marked menorrhagia. The treatise is an excellent one, particularly for the specialist in gynecology.

Oral Spirochetes and Related Organisms in Fusio Spirochetal Disease
By David T. Smith, A.B. M.D. Associate Professor of Medicine, Duke University School of Medicine, Durham, N. C. Cloth, Price \$4.50. Pp. 243 with 53 illustrations. Baltimore: Williams & Wilkins Company, 1932.

This excellent volume can be recommended unreservedly to all practicing physicians. It is the first complete and authoritative review of the subject. It presents a concise systematic discussion of fusospirochetal infection in every part of the body covered by reports in the literature, as well as a summary of its occurrence in animals. The length and extent of the author's experience give great authority to his careful conclusions and advice. The general summary on the dust cover represents the clinical conclusions of the volume. Fusospirochetal disease is preventable, its diagnosis is easily established, and its treatment is fundamentally the same in all the various types of lesions. The closely woven story of history, experimental data, reproduction in animals, clinical picture and treatment is of rare value to the clinician. The physical make-up of the book is most creditable and the number of typographic errors is minimal for a first edition. Some of these should not have crept in. For example, in the bibliography in reference 261 "Jour Cun Invest" appears instead of "Jour Clin Invest". On page 69, figure XVI shows an "amebic cyst" in material from pyorrhea, and elsewhere *Endamoeba gingivalis*, which does not produce cysts, is misnamed *E. gingivitis*. The author refers to tartar emetic as a dangerous drug for intravenous use. While this is true, with a simple and accurate technique it is probably no more dangerous than neocarsphenamine and emetine, if as much so. In general, the illustrations would be greatly improved by using photomicrographs largely. Many of the drawings are below par. The bibliography of 822 titles is not the least valuable feature of the book. The author presents a good argument for interchangeability between the fusiform and the spirilliform organisms. In general the volume can be accepted as an important addition to the library of clinical and experimental medicine.

Le doilechocolon. Clinique, radiologie, thérapeutique. Par M. Chlray, professeur agrégé à la Faculté de médecine de Paris. A. Lomon, électro-radiologiste des hôpitaux et R. Wahl, chef de clinique à la Faculté. Paris: Pp. 209 with 44 illustrations. Paris: Masson & Cie, 1931.

This is a clinical and roentgenographic study of the redundant and enlarged colon. The etiology, pathology, symptoms and clinical manifestations are discussed, also the radiologic considerations and finally the treatment. Numerous cases are cited and the management both medical and surgical, is given. The bibliography is complete. The illustrations are clear.

Physiology and Anatomy. By Esther M. Greisheimer, B.S. In Education. A.V. H.D. Associate Professor of Physiology, the University of Illinois at Urbana-Champaign. Cloth, Price \$3. Pp. 601 with 355 illustrations. Philadelphia: London & Montreal: J.B. Lippincott Company, 1932.

This is intended as a textbook for nurses. It deals with gross and minute structure and physiology. It includes also something of embryology and rather extensive paragraphs on clinical applications. The book is well fitted for this group of student. The style is simple, the sentences are short and the arrangement is almost a tabulation. The statements are of course dogmatic and do not raise in the mind of students any question or wonder as to the nature of the processes said to occur. The paragraphs in each topic are of necessity greatly condensed. Occasionally, as in the paragraph on the spleen, the consideration is extreme. Illustrations, diagrams and tabulations help the student to apprehend the ideas presented. The

illustrations are well devised and well reproduced. A glossary at the end should be of great value to such student nurses as are not provided with dictionaries. Dr. Greisheimer has undertaken a difficult task and has produced a book well adapted to the needs of nurses. They will find it an excellent textbook. With its help they can get elementary ideas of anatomy and physiology and enough of the terminology to understand the general character of the patient's disease and the physician's comments and instructions.

Die Dickdarmschleimhaut ihre normale und pathologische Funktion im Röntgenbilde. Von Priv. Doz. Dr. Werner Knothe, Leiter der Röntgenabteilung der II. medizinischen Universitätsklinik der Charité, Berlin. Boards, Price 8 marks. Pp. 56 with 113 illustrations. Leipzig: Georg Thieme, 1932.

This is a comprehensive study of the large intestine, focusing attention on changes of its lining in health and disease. The illustrations are excellent and numerous. It was written as a result of the writer's association with H. H. Berg in the x-ray division of the von Bergmann clinic in Frankfurt-on-Main. By the use of thin, opaque mediums the beautiful fluoroscopic pictures of normal mucosa and mucosa under pathologic conditions are portrayed. The roentgenographic work was repeatedly checked by anatomic specimens when it was possible to obtain them. There is a rich bibliography at the end. This monograph is recommended for any one interested in radiography.

Fun in Bed. The Convalescent's Handbook. Edited by Frank Scully and an All Star Cast including Eddie Cantor, Frank Sullivan, Peter Arno, Robert Ripley, Ring Lardner, O. Soglow, Harry Hereshfield, Patricia Collinge, Leonard Dove, Ogden Nash, Arthur Kober, Sidney Lenz, George Jean Nathan, William Shakespeare, etc. With a preface by Logan Clendening. Cloth, Price \$2.50. Pp. 187 with illustrations. New York: Simon & Schuster, 1932.

The compiler of this work has been for years an invalid. He therefore feels that he knows what will amuse most invalids when they are sick in bed. The collection includes books, funny pictures, crossword puzzles, anagrams, humorous essays, dramas, and a humorous preface by Logan Clendening. The book is sure to be amusing to any one, invalid or otherwise, because it is a collection of material from sure-fire sources.

Theoretische und klinische Pharmakologie. Ein Lehrbuch für Studierende und Ärzte. Von H. v. Hoesslin, Prof. Dr. med. und Franz Müller, a. o. Prof. Dr. rer. nat. et med. Fourth edition. Cloth, Price 10.20 marks. Pp. 245. Leipzig: Georg Thieme, 1933.

The object of this book is to unify theoretical and practical pharmacology, especially for the benefit of the practitioner. While the book is small, it includes most drugs discussed in the larger textbooks. Consequently a discussion of theories of action is minimized. In the theory of narcosis, for example, practically only the Meyer-Overson theory is discussed. In place of theory the authors have emphasized the practical to the extent of including many illustrations of how to give the drugs in prescriptions. The subject matter is well arranged, accurate and reliable, but the discussions are necessarily brief—too brief for either a textbook or a reference work. It is recommended to those who desire to know how the subject is viewed by the German practitioner and to those who may wish a brief reliable textbook in that language.

The Gold Headed Cane. By William Macmichael, M.D. Edited with Explanatory and Illustrative Notes and an Essay on William Macmichael, M.D. His Life, His Works and His Editors. By Herbert Spencer Robinson. Containing the Original Illustrations of the 1828 Edition and Hitherto Unpublished Portraits of the Macmichael Family and a Reproduction of William Macmichael's Handwriting. Cloth, Price \$3.50. Pp. 223 with illustrations. New York: Froben Press, Inc., 1932.

This volume is a reprint of previous editions of this medical classic. For those who may not remember, the gold-headed cane was passed down through the hands of several famous British physicians. In his imaginative account, the author provides the life and history of these men.

Die Krankheiten der Verdauungsorgane. Diagnostik und Therapie. Von Dr. Walter Wolff, Chefarzt der Inneren Abteilung am Königin Elisabeth Hospital zu Berlin-Oberschöneweide. Paper, Price 10.50 marks. Pp. 261 with 33 illustrations. Berlin: Urban & Schwarzenberg, 1932.

This book deals rather superficially in most instances with diseases of organs of the digestive tract and adds little to what is already in print on the subject.

Medicolegal

Alleged Malpractice in Performing Cataract Operation

(*McLeod v Hichs* (N C) 164 S E 617)

The plaintiff sued the defendant-physician for damages for alleged negligence in removing a cataract. The plaintiff claimed that the defendant negligently made an incision into the white part of his eye, which penetrated the posterior chamber, caused the loss of the vitreous humor and necessitated the removal of the eye about three years later. The defendant, on the other hand, claimed that the incision was properly made at the corneoscleral junction and that when the cataract was removed it was discovered that the eye was practically destroyed by disease and that the vitreous humor had greatly deteriorated. At the conclusion of the evidence the trial judge directed a verdict for the physician, and the patient appealed to the Supreme Court of North Carolina.

The first question to be determined, said the Supreme Court, is whether or not an incision was made into the white of the eye. The plaintiff and several other laymen testifying on his behalf stated that there was such an incision. Medical experts who examined the eye testified that there was no such incision, but that there was an incision at the corneoscleral junction. The determination of the location of the incision is not exclusively a technical question, and lay testimony is competent in regard to it. The testimony of a layman with respect to the location of a knife incision or wound on the exterior of a body is entitled to the same weight as that of an expert witness. Therefore, said the court, in passing on the judgment of non-suit, it will be assumed that there was a cut or incision in the white portion of the eye. In the final analysis the plaintiff sued to recover damages for the loss of his eye. The evidence indicates but three possible causes. First, that the eye was destroyed by disease, in which event, in the absence of evidence that the operation accelerated the course of natural causes, the defendant is not liable in damages. Second, that the operation performed by making an incision at the corneoscleral junction and removing the cataract was negligently done, but all the testimony is to the effect that the cataract was removed in the exercise of that technic and skill required by law. Third, that the cut in the white portion of the eye was the proximate cause of the injury. But, said the court, even if we assume that the incision was negligently made, there is no evidence that it caused the loss of the eye, and without such evidence the plaintiff is not entitled to recover. The judgment in favor of the physician was accordingly affirmed.

Optometry, Revival of Revoked License—The Maryland Code of Public General Laws, 1924, article 43, section 321, requires every registered optometrist to pay an annual registration fee and authorizes the revocation of the license of an optometrist who fails to pay it, but it is silent as to the reinstatement of a license so revoked. Section 323 authorizes the revocation of licenses because of various forms of unprofessional conduct and provides for the reinstatement of revoked licenses, but reinstatement is conditional on the licentiate's showing to the satisfaction of the licensing board, on examination, that he is fully qualified to practice. Kahn, a licensed optometrist, failed to pay the annual registration fee required by law. The state board of examiners of optometry therefore, in December, 1925, revoked his license. In 1927, Kahn asked the board to reinstate his license, offering to pay the annual fees for the period during which the license had been revoked. The board refused to accede to his request, however, unless he passed a satisfactory examination. He thereupon petitioned the Baltimore city court for mandamus to compel the board to reinstate his license, without examination. The court dismissed his petition and he appealed to Court of Appeals of Maryland. The section of the law, said the appellate court under which the board revoked Kahn's license is purely a taxing measure. It has no reference to the qualifications of the applicant. This section needs no further provision to enable a licentiate whose registration has been revoked for failure to pay the required

fee to procure the reinstatement of his registration on paying the tax for the current year. It would be unreasonable to suppose, said the appellate court, that the legislature meant that a licentiate desiring to suspend practice for a year or two could not resume practice on paying the fixed license fee, except at the discretion of the board. The order of the court below dismissing Kahn's petition for mandamus to compel the board to reissue his license was reversed and the case remanded—*Kahn v State Board of Examiners of Optometry* (Md), 161 A 12.

Workmen's Compensation Acts Liability of Physician for Malpractice—The plaintiff was injured in the course of his employment. Under the provisions of the Georgia workmen's compensation act, his employer's insurer employed the physicians who treated him. The patient sued these physicians and others, claiming that he had been injured by the insurer's failure to furnish proper medical attention and by the neglect of the physicians in giving proper care. The physicians and other defendants demurred, contending that any consequences of malpractice by the physician-defendants were a part of the injuries resulting from the accident and compensable as such. The workmen's compensation act of Georgia (Georgia Laws 1920, pp 167-182, section 27) provides that an employer shall not be liable for malpractice by a physician furnished by him pursuant to the provisions of the act, "but the consequences of any such malpractice shall be deemed part of the injury resulting from the accident and shall be compensated as such." A judgment was entered dismissing the suit, which judgment the court of appeals of Georgia, division 1, affirmed. All the parties, said the court, were operating under the workmen's compensation act, and the defendant physicians were treating the petitioner by virtue of that act—*McConnell v Hamcs* (Ga), 164 S E 476.

Malpractice Liability of Dental Corporation—United Dentists, Inc., was a corporation organized under the laws of Virginia and "authorized to engage in the practice of dentistry in all of its branches." The plaintiff consulted an employee of the corporation at its office in Norfolk, Va. He advised that a certain tooth be extracted and with her consent extracted it after injecting a solution of procaine into the gum. Infection followed at the point of injection. She sued the defendant corporation, charging negligence of the corporation's agent, based on his failure properly to sterilize the gum and his hypodermic needle. Judgment was given against the corporation, which was affirmed by the Supreme Court of Appeals of Virginia—*United Dentists, Inc., v Bryan* (Va), 164 S E 554.

Society Proceedings

COMING MEETINGS

- Alabama, Medical Association of the State of, Montgomery, April 18 21 Dr D D L Cannon, 519 Dexter Avenue, Montgomery, Secretary
- American Association of Anatomists, Cincinnati April 13 15 Dr George W Corner, University of Rochester School of Medicine, Rochester, N Y, Secretary
- American Physiological Society, Cincinnati, April 10 12 Dr Frank C Mann, Mayo Institute, Rochester, Minn, Secretary
- American Society for Experimental Pathology, Cincinnati April 10 12 Dr C Phillip Miller, Jr, University of Chicago Department of Medicine, Chicago, Secretary
- American Society for Pharmacology and Experimental Therapeutics Cincinnati, April 10 Dr V E Henderson, Medical Building University of Toronto, Toronto Canada, Secretary
- American Society of Biological Chemistry, Cincinnati, April 10 12 Dr Howard B Lewis, University of Michigan Medical School, Ann Arbor, Mich, Secretary
- Arizona State Medical Association Tucson, April 20 22 Dr D I Harbridge, 822 Professional Building, Phoenix Secretary
- Federation of American Societies for Experimental Biology Cincinnati, April 10 12 Dr C Phillip Miller Jr, University of Chicago Department of Medicine, Chicago Secretary
- New York Medical Society of the State of, New York, April 3 5 Dr Daniel S Dougherty, 2 East 103d Street, New York Secretary
- North Carolina Medical Society of the State of, Raleigh, April 17 19 Dr L B McBrayer, Southern Pines Secretary
- South Carolina Medical Association Spartanburg, April 18 19 Dr E A Hines Seneea, Secretary
- Southeastern Surgical Congress, Atlanta, Ga March 6 8 Dr B T Bersley, 45 Edgewood Avenue, Atlanta Secretary
- Tennessee State Medical Association Nashville April 11 13 Dr H H Shoulders 706 Church Street Nashville Secretary

Current Medical Literature

AMERICAN

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Titles marked with an asterisk (*) are abstracted below.

American Journal of Clinical Pathology, Baltimore

2 437-494 (Nov.) 1932

- Some Essentials for Satisfactory Work in Allergy J H Black, Dallas, Texas—p 437
Myeloid Immaturity in Pernicious Anemia F J Heck Rochester Minn—p 443
*Hematopoietic System and Infection B Markowitz Bloomington, Ill—p 449
Gelatinous Carcinoma of Breast. N Enzer, Milwaukee.—p 457
*Colloidal Benzoin Test of Cerebrospinal Fluid Its Clinical Value N Evans and W R. Dodson Los Angeles—p 463

Hematopoietic System and Infection—Markowitz states that there is a constant physiologic balance between the production and destruction of blood cells, this process maintains an equilibrium which is compatible with health. The introduction of a foreign substance as, for instance, infection stimulates the formative tissue to greater production of blood cells, this may be called the normal producing capacity. Some abnormal body constituent may account for the lack of proper activation of these formative tissues, which results in some form of blood dyscrasia. In the leukemias there is a hyper-producing capacity with overproduction of cells, whereas in agranulocytosis there is a hypoproducing capacity with a lack of cells. The histopathology of all leukemias indicates that there is no essential difference between the acute, chronic and aleukemic forms. Many septic processes seem to produce the same clinical symptoms and histologic changes that are seen in diseases of the hematopoietic system. Aplastic anemia, agranulocytosis and mononucleosis are usually associated with septic processes, while Hodgkin's disease presents histologic evidence of inflammation.

Colloidal Benzoin Test of Cerebrospinal Fluid.—In a review of the literature, Evans and Dodson found evidence that indicates that of the colloidal tests used in examination of the spinal fluid the benzoin test is the simplest to prepare and read, is as sensitive as and more informative than the gum mastic test, and is more sensitive than and as informative as the colloidal gold test. Their study of the data obtained from 2009 colloidal benzoin tests on cerebrospinal fluids from 1,800 patients signified that (1) the benzoin test is not a specific test in the same sense as the Wassermann reaction, (2) it is of value in differentiating active dementia paralytica from other forms of neurosyphilis (3) it is probably of value in differentiating epidemic encephalitis from poliomyelitis and tuberculous meningitis, and (4) a high percentage of positive readings is obtained in disease of the central nervous system but a positive second zone reading is occasionally obtained in certain conditions not associated with organic disease of the central nervous system.

American Journal of Hygiene, Baltimore

10: 625-888 (Nov.) 1932

- Injuries Produced by Contact with Electric Circuits O R Langworthy and W R Kouwenhoven Baltimore.—p 625
Physical Factors Involved in Ultrafiltration H R. Cox and R R. Hyde—p 667
Investigations of Endamoeba Histolytica and Other Intestinal Protozoa in Tennessee IV. Study of Flies, Rats, Mice and Some Domestic Animals as Possible Carriers of Intestinal Protozoa of Man in Rural Communities W W Frye and H E McInerney Nashville Tenn.—p 729
Experiments on Resistance of Lids to Superinfection with Nematode Nippostrongylus brasiliensis A C Chandler—p 740
Studies with Striped Nematode Haemaphysalis Constricta II. Potentialities of Curves Under Conditions of Natural Reinfection N J S. S.—p 748
The Occurrence of Natural Course of Brucella Abortus in Relation to Diet Held over a Few Years S K Dutton—p 790

- Comparative Study of Milk in Bottles with Single and Double Caps M L Isaacs and I Zeiber—p 806
Adsorption of Bacteriophage with Kaolin and Infusorial Earth M L Rakieten and G A Hunt.—p 823
Large Scale Rearing of Anopheles Quadrimaculatus in Captivity M F Boyd and T L Cain, Jr., Tallahassee Fla.—p 832
Note on Preparation of Anopheline Dissections for Examination M F Boyd, Tallahassee, Fla.—p 836
Methods for Manipulation and Conservation of Anopheline Imagines M F Boyd, Tallahassee, Fla.—p 839
Studies on Plasmodium Vivax I. Microgametocytes as Factor in Infectiousness of Infected Human M F Boyd, Tallahassee, Fla., and W K Stratman Thomas Jacksonville, Fla.—p 845
Id. II Influence of Temperature on Duration of Extrinsic Incubation Period. M F Boyd Tallahassee, Fla.—p 851
Some Studies on Breeding Mediums, Development and Stages of Eye Gnat Hippelates Pusio Loew (Diptera Chloropidae) D G Hall, Jr Dallas, Texas—p 854
Microscopic Study of Tissues of Albino Rat Following Ingestion of Aluminum Salts E Scott and Mary K. Helz, Columbus Ohio—p 865
Climatic Factor in Acute Nephritis C A Mills, Cincinnati—p 871
Epileptic Seizures in Relation to Daily Weather Factors T J LeBlanc and C A. Mills Cincinnati—p 876
Eye Color and Disease of Upper Respiratory Tract (Common Cold) W M Gafaer—p 880

American J Obstetrics and Gynecology, St. Louis

24: 635-796 (Nov.) 1932

- Morphology of Genital Epithelia with Especial Reference to Differentiation Anomalies E. Novak Baltimore.—p 635
Influence of Sex Hormones on Reticulo Endothelial Cells of Uterus and Possible Application to Treatment of Pelvic Inflammatory Conditions C F Fluhmann San Francisco—p 654
Increase of Guanidine Compounds in Eclampsia Experimental Study P Titus, F C Messer and R H McClellan Pittsburgh.—p 667
*Reconstruction of Oviducts Improved Technic Report of Cases F C. Holden and F W Sovak, New York.—p 684
Chemical Changes in Parturient's Blood H W Siedentopf, Chicago—p 696
Delivery Through Spurious Birth Canal R. A. Hurd, New York—p 705
Consideration of New Point of View on Etiology of Renal Tuberculosis in Women G L Hunner Baltimore.—p 706
*Diagnosis of Peritubal Adhesions and Tuhul Strictures by Uterotuhul Insufflation I C Rubin, New York.—p 729
*Influence of Age and Race on Duration of Labor C H Peckham Baltimore.—p 744
*Classification and Treatment of Dyspareunia. M D Mayer, New York.—p 751
Marked Hydramnios in Fifth Month of Pregnancy Case. E E Bunzel, New York.—p 755
Six Months Unruptured Isthmial Tuhul Pregnancy Report of Case. H Heinz New Bedford Mass.—p 757
Cancer of Vulva in Young Women. H Strauss Brooklyn—p 760

Reconstruction of Oviducts—Holden and Sovak report that seven of the ten patients operated on, or 70 per cent, have patent tubes after operation. The corrected percentage of patency after operation is 77.7 per cent. The authors reconstructed oviducts having occlusions in the outer third by performing what they have termed a "circumcision" operation as suggested by Bonney, everting the tube by bringing back the mucosa to the serosa for a distance of from 1.5 to 2.5 cm, thereby eliminating raw surfaces at the newly constructed ostium and avoiding adhesions and occlusions, which are so prone to follow plastic operations. For the reconstruction of oviducts showing occlusions in the inner two thirds they used the implantation operation which is as follows. The site of the occlusion is noted by air insufflation and the tube is severed proximal to the occluded area until a free passage of the insufflated air is evident. The uterine portion of the occluded tube is freed as far as the cornu from its attachment to the broad ligament, the cutting being done as close as possible to the tube, to avoid impairment of the ovarian circulation. Bleeding vessels of the broad ligament are clamped and tied with number 00 plain gut. The uterus is firmly held while the tube and its intramural portion are reamed out by a circular movement of the instrument entering the uterine cavity and maintaining as nearly as possible the normal position and course of the tube. The old occluded stump of the tube and the chronically infected cornual tissue are readily removed when the reamer is withdrawn. The new opening into the uterus will have a diameter of approximately 0.5 cm. The patent portion of the tube is also freed from its broad ligament attachment for a distance of about 0.5 cm, bleeding controlled, and then bisected longitudinally by cuticle scissors guided by a probe inserted within its lumen. Through the superior and inferior ends of the bisected tube a long number 00 chromic suture is passed and the ends of the suture clamped for sur-

ther use A Reverdin needle is inserted about 1 cm beyond the center of the fundus, posteriorly, and passed out through the newly created uterine opening, and the ends of the suture previously applied to the superior bisected portion of the tube are reinserted into the eye of the needle, the needle is withdrawn, and the sutures are brought out on the posterior surface of the uterus without tension. The same procedure is repeated by passing the Reverdin needle through the anterior surface of the fundus and bringing out the suture on the inferior portion of the bisected tube. The serosal covering of the bisected portion is traumatized, and by gentle pulling of the anterior and posterior fundal sutures the tube is gradually drawn into the newly created opening and its ends into the uterine cavity. The sutures are anchored on the fundus and two or three fine supporting sutures are passed through the serosa of both the tube and the uterus. The patency of the newly implanted tube is again tested by the use of the insufflation syringe. The reimplanted tube and ovary are suspended by the Poole technic and the uterus by a one point suspension.

Uterotubal Insufflation—According to Rubin's studies on the normal human tubes and the oviducts of the sow, the diagnosis of nonpalpable tubal adhesions and tubal stenosis can be made by uterotubal insufflation with the aid of the kymograph. It is based on the fact that tubal contractions in the presence of these lesions are completely absent or markedly changed. Observations were made at laparotomy, where these lesions were found affording an opportunity of checking the insufflation observations. Characteristic curves were produced. In the presence of tubal stenosis the initial rise of pressure was as a rule well above 100 mm of mercury. Instead of dropping sharply and exhibiting oscillations, the curve produced was rounded and the descent gradual. Fluctuations were absent. In the presence of peritubal adhesions without constriction of the lumen, the pressure was less elevated. The contractions were infrequent, irregular or shallow and at times entirely absent, depending on the degree of immobilization produced. The location of pain elicited during the performance of the test and the auscultation observations were found to vary with the site of obstruction. Roentgenologic examination of the tubes after the injection of iodized poppy-seed oil proved of less value than laparotomy in checking the insufflation observations of peritubal adhesions and tubal stenosis. The disadvantages of the oil in this respect were due to its rapid escape from the cervix in some cases, its inability to pass high grade strictures in most cases, and its tendency in the strictured tubes to produce foreign body reactions. Insufflation of the excised but surviving uterus and tubes reproduced curves similar to those found by clinical uterotubal insufflation when adhesions and strictures were present. By the artificial reproduction of immobilizations and stenosis of the tubes, the paralyzing effect on rhythmic tubal contractions and tubal peristalsis was also demonstrated.

Influence of Age and Race on Duration of Labor—Peckham made an analysis of the effect of age and race on the duration of labor in a series of 13,658 consecutive deliveries at or near term. From his study he concludes that Negro women, both primiparas and multiparas, and regardless of age, have consistently longer labors than white women. In both races, a consideration of total cases reveals an increased duration of labor in the older age groups, which, however, is more marked among Negro women than white women. Omitting cases of contracted pelvis, this age increase persists in the Negro race but almost disappears in the white race. Considering only those cases delivering spontaneously, the duration of labor tends to fall with advancing age in white patients, even primiparas, although it increases in Negro women regardless of parity.

Treatment of Dyspareunia—Mayer states that dyspareunia varies as to the cause, as to the individual and as to the domestic situation. The causes may be organic, psychogenic or a combination of the organic and the psychogenic. In the diagnosis, in addition to the ordinary gynecologic history it is essential to determine the familial setting, the developmental history, other complaints and other experiences in the past. Among the most important of the facts in the present history are the severity, the duration, the onset, the patient's attitude toward the complaint and to her mate, the previous attempts at treatment, the frequency, duration and position of coitus, and

the presence or absence of orgasm. Treatment depends on the type of dyspareunia and its cause. It may be prophylactic by premarital instruction or actual. The actual treatment should be radical. If the cause is mental, the treatment should be mental, though it must be understood that this does not preclude local measures and that the patient may well attribute a cure to these local measures. The treatment of psychogenic dyspareunia commands extended attention. It is important for the gynecologist to differentiate those cases in which he can reasonably expect to get a good result from the suggestive measures at his disposal and those which he had better refer to a psychotherapist. The majority of cases of dyspareunia coming to the gynecologist are primarily psychogenic, although all the cases have some psychologic factors. The more these factors are taken into account, the more efficacious is the treatment. It is of great importance to interview the husband. Acquired dyspareunia may result from fear of pregnancy, in which one may combine a brief psychotherapy with adequate contraceptive advice. Prolonged psychotherapy offers a reasonably fair prognosis only as far as the dyspareunia is concerned, though the prognosis is poor so far as frigidity is concerned.

American Journal of Surgery, New York

18 207 402 (Nov.) 1932

- Causes of Peptic Ulcer W C Alvarez, Rochester, Minn —p 207
- *Nonsurgical Treatment of Peptic Ulcer Relative Therapeutic Value of Gastric Mucin F Smithies, Chicago —p 232
- *Stoneless Gallbladder Operative Cases E M Stanton, Schenectady, N Y —p 246
- Total Perineal Prostatectomy for Small Prostate E G Crabtree, Boston —p 251
- *Recurrent Benign Prostatic Hypertrophy N F Laskey, New York —p 259
- Probable Bilateral Tumor of Carotid Body Case G de Tarnowsky, Chicago —p 261
- Small Foreign Bodies in Extremities Improved Method for Removal R W McNealy and J D Willens, Chicago —p 267
- Diagnosis of Advanced Abdominal Pregnancy A M Mendenhall, Indianapolis —p 270
- End to End Approximation and Accurate Reduction as Necessity in Fracture Therapy W W Ebeling, Philadelphia —p 272
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- Acute Intestinal Obstruction Due to Fetal Peritonitis G H Ernsberger, Los Angeles —p 322
- Common Errors in Diagnosis of Rectal Tumors W H Daniel, Los Angeles —p 323
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- *Pseudomenstruation in Human Female C Mazer and A J Ziserman, Philadelphia —p 332
- Salt Free Diet in Treatment of Surgical Tuberculosis M W Mettenleiter, New York —p 337
- Os Intermetatarsale and Hallux Valgus P H Wheeler, Cleveland —p 341

Peptic Ulcer—According to Smithies, peptic "ulcer," esophageal, gastric or duodenal in location, rarely begins as a mucosal lesion. The primary visceral defect and the focus from which arise recrudescences are a mural disturbance in tissue structure and specific, secretory function. Mucosal damage, which converts the mural lesion into one of ulcer type, is a complication or extension of mural damage demanding treatment, because then the mural lesion is limited in its capacity to repair by the proteolytic action of the gastric juice. "Ulcer" healing, therefore, is resolved into two distinct and definite phases: (1) epithelial reconstruction, partial, without normal, histologic, glandular structure or with such, and (2) the disappearance of the primary mural lesion. There are many local systemic or constitutional disharmonies capable of producing visceral mural changes, which may extend themselves so as to include the mucous membrane and hence convert the mural lesion into one of ulcer form. The therapy of peptic ulcer treatment calls for the eradication of the mural lesion by excision or by measures that allow the development of scar tissue and the attempt to restore mucosal epithelization. Nonsurgical management of peptic ulcer is followed by healing, sometimes permanent, in from 60 to 77 per cent of instances. Gastric mucin has been advanced as an agent that prevents mucosal proteolysis by "buffering" free hydrochloric

acid, by mechanically protecting the injured mucous membrane and by improving the systemic capacity for healing through the agency of increased nourishment. In the author's study of thirty-nine patients with peptic ulcers, he was not able fully to substantiate the claims of Fogelson, Atkinson or Brown. The treatment by Fogelson's gastric mucin was handicapped because the mucin is difficult to preserve, is obnoxious as to odor and taste, is difficult to administer, is unreliable as to dosage and effects, is expensive, and, in the group of patients observed by the author, appeared to have toxic potentialities.

Stoneless Gallbladder—On the basis of 433 gallbladder operations, of which 113 were stoneless, Stanton states that all actual objective data studied by him point to the conclusion that the one reliable indication of gallbladder disease of a type yielding to surgical intervention is the presence of well defined attacks of gallbladder colic. If the surgeon is definitely certain of his ground relative to the clinical history of biliary colic, he can proceed to remove the gallbladder irrespective of obvious pathologic changes recognizable at the operating table. Just so far as the clinical picture of true biliary colics becomes doubtful, or the clinical picture shades into ill defined digestive disturbances of the general type that many surgeons have been wont to call the symptoms of the precalculous stage of cholecystitis, do the end-results of operative treatment begin to fail. It seems highly probable that the indications for operation must be based and justified almost wholly on the symptomatology, and that little reliance can be placed on the pathologist's report until such time as pathologists learn to recognize a pathologic condition corresponding to the symptomatology.

Recurrent Prostatic Hypertrophy—From a review of the literature, Laskey concludes that prostatic adenomas recur and may produce symptoms as severe as at the time of the first operation. Recurrence may be due to nodules left at the time of the first operation or to activity in regenerative centers in the prostatic capsule. At the time of the first operation one must be extremely careful to remove the entire adenomatous prostate with nodules, and so on. He reports two cases in men aged 61 and 62. One had recurrent symptoms with obstruction within four years and had a second prostatectomy after five years; the other had symptoms with palpable enlarged recurrent adenoma within two years.

Aberrant Endometrium—Hill found in the records of Touro Infirmary 135 patients with some form of aberrant endometrium in a series of 1,200 patients operated on for some pelvic manifestation between January 1927 and January 1931. Of these 135 patients, 15 per cent had adenomyomas of the uterus and 85 per cent had peritoneal endometriomas. The aberrant endometrium in the pelvis was considered to be extensive enough to produce some of the symptoms in 26 per cent of the patients. During the time this series was taken, 497 patients were operated on for uterine fibroids, 280 for chronic salpingitis, 202 for uterine displacements and 40 for cystadenomas of the ovary. The correct diagnosis was made at the time of operation in 58 per cent of the patients of the gynecologic services and in only 2 per cent of the general surgical services. In 19 per cent the lesions were so small that they could be recognized only by the microscope. Fibroids were associated with the aberrant endometrial tissue in 46 per cent of the patients, displacements of the uterus in 8 per cent and pelvic inflammatory disease in 37 per cent. The youngest patient was 16 years old, the oldest 61. Thirty per cent of the patients were sterile. One patient was the mother of twelve children. Twenty per cent of the patients with marked endometriosis were unmarried. Menorrhagia was a symptom in 22 per cent, metrorrhagia in 11 per cent, dysmenorrhea in 26 per cent and no menstrual disturbance in 51 per cent. Three per cent were past the menopause. Dyspareunia was present in several. Aberrant endometrium was found in a normal pregnant woman and in a patient with an extra uterine pregnancy. In neither of these patients was there a decidua reaction in the aberrant endometrium. Three patients were operated on and ruptured chocolate cysts found. In none of the three was this suspected before operation. There are no constant characteristic signs or symptoms of aberrant endometrium. The most important individual symptom is pain and tenderness over the site of the growths during the menstrual period. This however is the exception and not the rule. Aberrant endometrium probably originates both from the implantation of uterine mucosa

regurgitated through the tube and from a metaplasia of the germinal epithelium or pelvic peritoneum.

Pseudomenstruation—Mazer and Ziserman state that amenorrheic and irregularly menstruating women are admittedly hypofunctioning, women who menstruate regularly and in whom there is no demonstrable cause for the existing sterility present a problem in diagnosis. In these women a premenstrual curettage and the simultaneous determination of the hormone content of the blood by the Frank and Goldberger method are invaluable from the standpoint of diagnosis and treatment. The failure to obtain a premenstrual endometrium and a mouse unit of female sex hormone a day or two before the expected flow in regularly menstruating women is indicative of ovarian dysfunction, either primary or secondary to anterior pituitary deficiency. For the following reasons the authors infer that these women do not ovulate: 1 In the human being and *Macacus rhesus*, the presence of a normal corpus luteum is invariably associated with a progesterational endometrium. 2 An interval endometrium in *Macacus rhesus*, obtained at the onset of the flow, is invariably associated with an absence of ovulation and corpus luteum. 3 In the course of abdominal operations on regularly menstruating women who were at the end of the menstrual cycle, some surgeons occasionally have found a total absence of a recent or old corpus luteum. 4 The absence of a demonstrable quantity of female sex hormone in the circulating blood a few days before the ensuing menstruation also points to a possible failure of luteinization, in view of the fact that 94 per cent of regularly menstruating fertile women show a positive reaction at this phase of the menstrual cycle. The usefulness of organotherapy in these cases is limited because one of the two ovarian hormones, "progesterin," so essential in the preparation of the premenstrual endometrium, is not obtainable for therapeutic use. The luteinization hormone from the anterior pituitary lobe, now available for therapeutic use, gives promise of therapeutic results.

American Review of Tuberculosis, New York

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- *Pathologic Peculiarities of Tuberculosis in American Negro. M. Pinner, Tucson, Ariz., and J. A. Kasper, Detroit.—p. 463
- Tuberculosis Among the Indians in Montana. W. G. Richards, Billings, Mont.—p. 492
- *Tuberculosis in the Indian. H. A. Burns, Ahwah Ching, Minn.—p. 498
- Incidence of Tuberculous Infection Among School Children of Five Montana Indian Reservations. H. J. Warner, Spokane, Wash.—p. 507
- Pulmonary Tuberculosis in Aged. E. H. Rubin, New York.—p. 516
- Eleven Years' Observations on Tuberculosis Among University Students. J. A. Myers and Marjorie Wulff, Minneapolis.—p. 530
- Detection of Pulmonary Tuberculosis in Three Thousand Students Entering Yale University. W. B. Soper and J. L. Wilson, New Haven, Conn.—p. 548
- Incidence of Tuberculous Infection Among High School Students of Morrison County, Minnesota. Elizabeth A. Leggett and J. A. Myers, Minneapolis.—p. 559
- Adult Type Tuberculosis in Children. A. A. Karan, Wallum Lake, R. I.—p. 571
- Skin Reactions and Tuberculous Disease in Children. C. H. Webb, Chicago.—p. 583
- Prognosis and Treatment of Resolving Parenchymal Tuberculosis of First Infection in Infants and Children. C. A. Stewart, Minneapolis.—p. 597
- *Erythema Nodosum and Tuberculosis in Children. L. B. Dickey, San Francisco.—p. 614
- Tuberculosis of Bones and Joints in Children. C. L. Hyde, East Akron, Ohio.—p. 625

Tuberculosis in American Negro—Pinner and Kasper compared the postmortem observations in 303 Negroes and 219 white patients who died of tuberculosis. They found a greater frequency of miliary tuberculosis in the Negro (37.3 per cent as against 15.5 per cent), a greater frequency of hematogenous metastases in the Negro (84.2 per cent as against 40 per cent), greater frequency of lymphatic metastases in the Negro (66.8 per cent as against 10.8 per cent), and various qualitative differences in the pattern of tuberculous lesions in the two races. The discrepancies that they observed led them to the conclusion that infection tends to produce a high state of allergy in the Negro but that he, unlike the white man, does not readily acquire a state of increased resistance coincidentally. Although the differences are not all mutually exclusive for the two races they are deemed to be of sufficient significance to warrant their serious consideration in explaining the well known discrepancies in the tuberculosis mortality rates and in the apparent individual resistance of Negroes and white persons.

The authors conclude that lack of childhood infection in the American Negro, often heralded as the cause of his inferior resistance, does not exist. They acknowledge the all important role of environmental conditions in the pathogenesis of the disease. But environmental factors are apparently not capable of explaining satisfactorily both the high mortality and the peculiarities of individual disease. They are impressed by the necessity of considering the likelihood of true genotypic differences between the two races in order to explain their different reactions to tuberculosis.

Tuberculosis in the Indian—From a survey of the mortality rate of tuberculosis among the Indians during the five years from 1927 to 1931, Burns observed that the Indian has a death rate from tuberculosis ten times greater than the white man. Racial mixing has not seemed to reduce the infection rate or the death rate from tuberculosis in the Indian population. The infection rate among the Indian school children is much higher than among the white school children living in the same county. There are no marked differences in the clinical types occurring among the various degrees of mixed bloods, full bloods and whites. The opportunity for contact over a long time seems to be the most important element explaining the prevalence of and the high death rate from tuberculosis. Tuberculosis in the Indian does not differ in any important essential from other communicable diseases. The Indian constitutes an important reservoir of infection which must be controlled to prevent the spread of the disease to the non-Indian population. It is quite apparent that the application of epidemiologic knowledge and public health practice can reduce the infection rates and death rates to their ultimate minimums among the Indian population.

Erythema Nodosum and Tuberculosis in Children—Dickey reviews the literature and states that in 100 per cent of sixteen patients under 15 years of age (observed at the Pediatric Service of Stanford University Medical School), suffering from erythema nodosum, a tuberculous infection has been proved, if one considers the intracutaneous tuberculin test as specific. A distinct majority of the patients were girls. All were hypersensitive to artificial tuberculin and most of them to minimal doses. Four of the rashes of erythema nodosum followed the inoculation of artificial tuberculin intracutaneously. In most of the patients a perifocal reaction was found in the chest by roentgenography. Six of the tuberculous infections were most probably initial. While it has been definitely proved that erythema nodosum may occur in children in the absence of allergy to tuberculin, and probably therefore in the absence of infection, one should consider this skin manifestation, when occurring in children, as evidence of an early infection or reinfection with the tubercle bacillus, unless there is definite proof to the contrary.

Annals of Internal Medicine, Ann Arbor, Mich

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Fungus Infections of Central Nervous System. W. Freeman, Washington, D. C.—p. 595

Errors in Diagnosis of Diseases Associated with Jaundice. Observations Based on Five Hundred and Thirty Three Cases Verified by Operation or Necropsy. G. B. Eusterman, Rochester, Minn.—p. 608

*Peptic Ulcer. Early and Late Effects of Parenteral Injections of Non-specific Protein. Conclusions Drawn from Experimental Work on Modus Operandi of Therapeutic Agent and on Etiology of Lesion Helped by It. L. Martin, Baltimore.—p. 622

*Clinical Diagnosis of Pulmonary Arteriosclerosis. H. L. Ulrich, Minneapolis.—p. 632

Summary of Recent Studies on Equine Encephalomyelitis. K. F. Meyer, San Francisco.—p. 645

Sensitization to Fungi. G. T. Brown, Washington, D. C.—p. 655

*Ten Years at the Lymanhurst School for Tuberculous Children. J. A. Myers, Minneapolis.—p. 672

Friction Rub over Liver in Patient with Subacute Bacterial Endocarditis. M. Kasich, New York.—p. 689

Migraine Syndrome. O. T. Osborne, New Haven, Conn.—p. 691

Trend in Cerebral Localization. L. F. Barker, Baltimore.—p. 697

Peptic Ulcer—Martin gave intramuscular injections of milk protein to ninety-five patients suffering from peptic ulcer. Of these patients 78 per cent had been greatly improved or clinically cured at the end of treatment. At this time a greater percentage of those whose symptoms had existed for only a few months, 84.6 per cent, were clinically cured or improved. From one to four years after treatment, 60 per cent of the sixty patients who reported were clinically cured or improved. Of those whose symptoms had existed less than one year prior

to treatment, 77.9 per cent were improved or clinically cured. The majority of the author's patients had been on a general diet. The author believes that duodenal ulcer in man may be the result of a reaction of sensitized cells to a specific antigen and that the therapeutic aid brought about by the parenteral injection of milk protein may be due to a nonspecific desensitization of the sensitized cells.

Pulmonary Arteriosclerosis—Ulrich points out that the clinical bases for the diagnosis of pulmonary arteriosclerosis have been a delimitation of the heart which resembles a mitral or congenital type, the symptoms of an undue cyanosis and dyspnea not commensurate with the clinical observations, repeated hemoptyses with little evidence of infarct, radiologically a silhouette of the heart of a mitral or congenital type with increased hilus shadows, increased vascularity, and visible pulsation of the larger and sometimes pulsation of the smaller vessels in the lung field. To these he adds a new triad found in cases which clinically fit into the category of pulmonary arteriosclerosis, palpable pulsation in the intercostal spaces, a pulmonary souffle heard all over the chest, and the dance of the diaphragm (a fluoroscopic observation which consists in a down and up movement of the diaphragm synchronously with systole and superimposed on its respiratory movements). The author bases this triad on the assumption that, with increased arterial pressure and with the usual accompanying dilatation in the larger and medium sized vessels, the increased volume of blood, with increased force, entering the lung would make the lung pulsate much like the expansile pulsation of a congested liver in tricuspid insufficiency, or like the pulsation of a liver in aortic insufficiency when there is a marked water-hammer effect in the hepatic arteries. In a case of mitral disease which under the fluoroscope had exquisite pulsation of the pulmonary arteries well out in the lung areas, palpation of the interspaces gave a distinct impulse. This impulse is best felt in the second interspace to the left and right of the sternum, laterally in the interspaces in the midaxillary lines, posteriorly in the lower interspaces, and sometimes in the interscapular areas. It occurred to the author that there might be a vascular bruit due to the deformity of the pulmonary vessels. He found it so in his test case. The bruit is vascular, it must be differentiated and disassociated from cardiac noises transmitted by the chest wall. This bruit is heard all over the chest but can be most clearly heard in the left second interspace, in the right second interspace, and over the whole right side, particularly since the cardiac noises are heard less on that side. Again, he argued that if a lung pulsated as a whole to the extent that it was palpable through the chest wall it might be possible to see this effect on the diaphragm. Under the fluoroscope, particularly on the right side, following a deep breath, the down-and-up movement of the dome could be seen during expiration, synchronous with the heart beat. The author concludes that with this new triad an earlier diagnosis of pulmonary arteriosclerosis is possible.

Tuberculous Children—A ten year observation at Lymanhurst leads Myers to conclude that in the diagnosis of the childhood type of tuberculosis the tuberculin test and roentgen examination are superior to all other aids. The best type of tuberculin test is the intracutaneous method of Mantoux. The intracutaneous test is so specific that it constitutes a fine tuberculosis screen. The roentgenogram is a coarse screen when compared with tuberculin, as one is rarely able to detect lesions by its use in more than from 20 to 25 per cent of the children who give a positive reaction. Among 4,031 children reacting negatively to the tuberculin test there was evidence of questionable to definite childhood type of tuberculosis in 2.79 per cent, while among 4,737 children reacting positively to the tuberculin test such evidence of the childhood type of tuberculosis was found in 22.91 per cent. Among the 4,031 negative reactions the adult type of tuberculosis was found in 0.05 per cent, while among the 4,737 positive reactions the adult type of disease was found in 1.26 per cent. Among the negative tuberculin reactors no case of tuberculosis of the bones and joints was found, while among the positive reactors 0.52 per cent was found. The infant has an excellent tolerance for tubercle bacilli. The factors that seem to determine whether he survives or succumbs are dosage and continued exposure. The author's observations have convinced him that only those children with the first infection type of tuberculosis develop the

adult and destructive type. Therefore he does not see his way clear to consider the first infection type of tuberculosis as a protection to the child. He believes that the longer the first infection type of tuberculosis can be prevented in the human body, the better. The ultimate goal should be to reduce the possibilities of exposure so that one may live without the first infection type of tuberculosis appearing in the bodies of most people. The childhood type of tuberculosis usually comes under control without treatment. He believes that it rarely, if ever, kills as it occurs in nature, and he is of the opinion that the vast majority of such cases do not require hospitalization. Protection from further exposure to tubercle bacilli, and the use of energy producing foods, conservation of energy, and medical and nursing supervision, such as may be provided by special schools for tuberculous children, are all that is required. When the adult type of tuberculosis appears, if the home conditions are not good, sanatorium or hospital care is indicated, and such special treatment as collapse therapy is none too drastic.

Archives of Pathology, Chicago

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- Lipoidgranulomatosis (Type Hand Schuller Christian) Report of Case. W. Chester and V. H. Kugel, New York.—p. 595
- *Mechanism of Calcification in Heart and Aorta in Hypervitaminosis D. A. W. Ham, Toronto, Canada.—p. 613
- *Congenital Cyst of Lung. H. L. Stewart, P. J. Kennedy and A. E. James, Philadelphia.—p. 627
- Experimental Pathology of Liver. XI. Effect of Phosphorus on Normal and Restored Liver Following Partial Hepatectomy in Albino Rat. J. G. Love, Rochester, Minn.—p. 637
- *Parathyroid Hormone. Its Regulatory Action on Parathyroid Glands and Toxic Effect on Tissues of Rat. F. A. McJunkin, W. R. Tweedy and H. C. Breubach, Chicago.—p. 649
- Transfusion Experiments with Blood of Leukemic Chickens. F. P. Crank and J. Furth, Philadelphia.—p. 660
- Truncus Arteriosus Communis Peristens. Criteria for Identification of Common Arterial Trunk. Report of Case with Four Semilunar Cusps. Eleanor M. Humphreys, Chicago.—p. 671

Hypervitaminosis D—According to the experiments of Ham, enormous single doses of viosterol will produce massive calcifications in the aorta, coronary vessels and cardiac musculature of the rat as soon as forty-eight hours after administration. Sections from the tissues twenty-four hours after administration showed nothing that would presage such an imminent catastrophe, so that the calcification did not appear to depend on degenerative changes in the recipient tissues. The rapidity of formation, together with the massiveness of the calcifications, suggested that the prime factor in their causation was the inability of the serum to retain all its calcium in solution. The author suggests that precipitation depends on saturation of the serum with diffusible calcium and other factors. It seems probable that conditions suitable for precipitation could be more easily obtained as the serum calcium level is falling after the attainment of hypercalcemia. An inflammatory cell infiltration developed about the affected coronary vessels and about the calcified areas of cardiac muscle. His observations indicate that the toxic action of vitamin D does not depend on a quality separate from that on which its therapeutic action depends. The vitamin does not necessarily possess a specific toxic effect on tissues, but the calcifications of hypervitaminosis D can be explained by its action on the calcium metabolism. He also suggests that the calcifications of the variety that depends on the inability of the serum to retain all its calcium in solution depend for their causation to a greater extent on the level of the diffusible calcium than on the level of the serum calcium. He concludes that the so-called toxic effect of vitamin D demonstrated in his experiments was obtained only with enormous amounts of the vitamin, and that the doses used were infinitely beyond those utilized therapeutically in the administration of cod liver oil or viosterol.

Congenital Cyst of Lung—Stewart and his associates review the literature and report a case of congenital cyst of the lung, in a woman, aged 54, in whom the majority of the distended bronchi communicated with the main bronchial tree. A few had no such connection, and they were therefore true cysts. These may have enlarged during postnatal life. The majority of the distended bronchi ended blindly. A few terminated in functioning alveoli which accounted for the variation in their presentation. As associated factors hypertrophy of the right side of the heart and sclerotic changes of the pulmonary artery

and polycythemia were found. The physical sign observed, indistinguishable from a pleural friction rub over the entire chest, is of diagnostic import. The authors state that until more information is available such malformations should be classified under the general term of "congenital cyst of the lung."

Parathyroid Hormone—On the basis of experiments on rats, McJunkin and his associates state that the parathyroid hormone inhibits mitotic proliferation of the parathyroid in amounts insufficient to produce hypercalcemia and destructive lesions of parenchymatous organs. The lesions produced by excessive doses of the hormone are toxic and primary. The circulatory failure that characterizes the fatal cases is secondary to the destructive lesions in the myocardium. The hormone when brought into direct contact with parenchymatous cells produces lesions analogous to those produced after its absorption into the blood stream. Necroses are produced in the kidney and heart by intraperitoneal injection of calcium gluconate alone. It is probable that the hormone and calcium gluconate as well as viosterol injure parenchymal cells by disturbing the calcium components of the tissue fluids of the cells themselves. There is no evidence of metastatic calcification in the rat in the sense that the calcium is deposited in tissue otherwise normal. In the rat, local degenerations of the tissues are primary and precede calcification. Amounts of hormone insufficient to produce effects demonstrable by the methods previously used successfully arrest mitotic proliferation of the parathyroid. Amounts not large enough to elevate the serum calcium may cause myocardial lesions. Inactivated hormone, completely inert as determined by the usual method employed for testing activity, arrests parathyroid proliferation but produces neither hypercalcemia nor destructive lesions.

Arch. of Physical Therapy, X-Ray, Radium, Chicago

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- Teaching of Physical Therapeutics in Dental School Curriculum. A. T. Newman, New York.—p. 645
- Present Trend in Tuberculosis Mortality. B. Goldberg, Chicago.—p. 650
- *Radium Treatment of Toxic Goiter. S. Ginsburg, New York.—p. 655
- *Recent Advances in Diathermic Treatment of Pneumonia. H. E. Stewart, New Haven, Conn.—p. 668
- *Bronchoclysis. Original Method for Prolonged Intrapulmonary Therapy. M. J. Mandelbaum, New York.—p. 673
- Electrocoagulation of Tonsils. Biterminal Flexible Electrode. J. F. Jaros, Chicago.—p. 682

Radium Treatment of Toxic Goiter—According to Ginsburg, under the term toxic goiter are included all types of nonmalignant goiter associated with tachycardia, tremor, wasting, increased basal metabolic rate, and nervous and mental manifestations, with or without exophthalmos. Clinically, the three main groups are diffuse toxic, nodular or adenomatous toxic, and nodular and diffuse toxic goiter. Pathologically, no fundamental distinction is recognized among the various types of toxic goiter. They are looked on as mere variations of a single disease. The entire gland is usually involved in the pathologic process in primary diffuse toxic goiter, while discrete areas are involved in nodular goiter, with intervening healthy tissue between the affected areas. In the pathogenesis of primary as well as secondary exophthalmic goiter, a definitely diseased thyroid assumes a predominant and central role. In addition to general supportive and symptomatic measures and removal of foci of infection, local treatment directed toward the thyroid is of paramount importance. The etiology of exophthalmic goiter still remains unknown. Medical treatment of the disease, although merely symptomatic and supportive, has yielded good results in many mild and some moderately severe cases. The mortality of mere medical treatment of severe cases of thyrotoxicosis has been recorded as high as 11, 17 and 38 per cent, in the experience of different observers. Surgical treatment, in spite of improvement in technique and preoperative use of iodine, still carries a mortality of between 0 and 27 per cent. Nor does recovery from the operation always mean complete clinical cure of the disease. Radium therapy efficiently applied yields as brilliant results as surgery or even more brilliant results, without the attendant mortality and postoperative complications of surgical procedures. To obtain such results, proper selection of cases must be made. The types of cases in which radium therapy is indicated are (1) borderline, mild or larval cases, (2) early cases, (3) cases presenting slight thyroid enlargement, (4) the aver-

age case without compression, (5) postoperative persistent or recurrent cases, (6) severe cases, without compression, in which operation is refused, and (7) poor operative risks. Radium therapy should always be combined with judicious medical management. Surgical therapy is indicated in (1) cases refractory to radium therapy, (2) cases presenting compression phenomena, (3) severe cases in which quick economic restoration is required, and (4) cases presenting large, long standing, adenomatous goiters, in which perfect cosmetic results are demanded.

Diathermic Treatment of Pneumonia—Stewart states that the treatment of pneumonia by diathermy is steadily gaining favor whenever it has been given an adequate clinical trial. Clinical improvement sufficient to justify the employment of diathermy is attested by every writer on the subject. A more general knowledge of the efficiency of early treatment on the part of the profession at large will lower the mortality figures. The use of diathermy in pneumonia affords a measure of the greatest value in the treatment of each case.

Bronchoclysis—Mandelbaum believes that bronchoclysis permits prolonged local application of remedial agents in isotonic aqueous solution to lesions of the bronchopulmonary organs and a flushing of the rich bronchopulmonary lymphatic system as a result of the ability of the lower respiratory canal, after preliminary local anesthesia, to retain catheter-like instruments of fine caliber for longer periods than heretofore found possible. The procedure is initiated by the insertion of a specially curved, cotton-tipped pyriform-sinus applicator, moistened with a freshly made 10 per cent solution of cocaine, in each pyriform sinus, first on one side and then on the other. It should be held in position from one to two minutes and after an interval of ten minutes should be inserted again. As bronchoclysis requires the prolonged retention of the catheter in the tracheobronchial canal, it is best to instill a few drops of a warm 2 per cent solution of cocaine on the vocal cords as well as between them into the trachea by means of a specially made syringe with a tracheal curve. After the anesthetic has taken effect, the wire stylet should be anointed with sterile olive oil, liquid petrolatum or iodized poppy-seed oil, before slipping it into the catheter, to permit its easy withdrawal when the catheter is in situ. With the patient sitting in the usual position for laryngologic examination and the laryngoscopic mirror in place, either the patient himself or an assistant holds the extended tongue. The tip of the styleted catheter is inserted between the vocal cords while the patient is asked to take a deep inspiration. When the instrument has passed several inches below the cords, the tongue is released and the stylet withdrawn, while one hand fixes the position of the catheter at the upper teeth and the other grasps the proximal end. When the catheter is quickly and most gently slipped farther down toward the carina of the trachea and the wire stylet withdrawn, the patient is told to close his lips firmly on the catheter and to breathe slowly and regularly through his nose. Then the rubber tubing is connected by means of the free end of the double glass connecting tube by inserting it into the proximal end of the catheter held between the patient's teeth or by the operator's fingers. The fluid is allowed to flow into the desired region and the rapidity of the flow slowly increased up to from 40 to 50 drops a minute until from 15 to 25 cc. has been injected, which is sufficient for the first treatment. It is better to give small amounts frequently at first, in some cases from 15 to 25 cc. as often as every other day, and, as a tolerance is established, gradually to prolong the intervals with the increased amounts instilled until a drip rate up to 60 drops a minute and a quantity of from 500 to 600 cc. may be tolerated. Isotonic, isothermic solutions, either plain Ringer's solution or similar aqueous mediums, with the addition of antiseptic agents of bacteriostatic potency such as acriflavine, acriflavin, acriflavine and metaphen, have been used with excellent effect in all forms of purulent bronchopulmonary lesions and in cavitations, both tuberculous and nontuberculous, without untoward results. Their particular value in tuberculous cases is a symptomatic relief, apparently due to the effect on the secondary infecting organisms. They have also exerted a favorable influence in cases of bronchial distress following military gassing. Bronchoclysis should not be used during the early or acute febrile stage of bronchopulmonary disease.

Georgia Medical Association Journal, Atlanta

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- Origin and Development of Psychoneuroses L. M. Gaines, Atlanta—p. 421
Ocular Manifestations of Neurasthenia F. P. Calhoun, Atlanta—p. 424
Cardiac Manifestations of Psychoneurotic State E. F. Wahl, Thomasville—p. 428
Gastro-Intestinal Manifestations of Psychoneurotic State R. H. Oppenheimer, Emory University—p. 431
Sex Aspects of Psychoneurotics W. W. Young, Atlanta—p. 434
Treatment of Psychoneurotic State W. R. Houston, Augusta—p. 436
Practical Management of Diabetes H. Bowcock, Atlanta—p. 442
Treatment of Diabetes Mellitus W. P. Harbin, Jr., Rome—p. 446

Journal of Clinical Investigation, New York

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- Studies on Course of Vasomotor Fibers as Measured by Thermic Changes in Feet After Arterial Ligation and Section of Spinal Cord at Various Levels A. W. Oughterson, S. C. Harvey and Helen G. Richter, New Haven, Conn.—p. 1065
Studies on Action of Diuretics I. Effect of Euphyllin and Salyrgan on Glomerular Filtration and Tubular Reabsorption H. L. Schmitz, Chicago—p. 1075
Lung Volume and Its Subdivisions I. Methods of Measurement R. V. Christie, Montreal, Canada—p. 1099
*Urea Clearance Test in Toxemias of Pregnancy D. Hurwitz and W. R. Ohler, Boston—p. 1119
*Gastro-Intestinal Studies I. Gastric Juice in Pernicious Anemia O. M. Helmer, P. J. Fouts and L. G. Zervas, Indianapolis—p. 1129
Blood Flow in Brain and Leg of Man, and Changes Induced by Alteration of Blood Gases W. G. Lennox and Erna Leonhardt Gibbs, Boston—p. 1155
*Blood Picture in Exophthalmic Goiter and Its Changes Resulting from Iodine and Operation Study by Means of Supravital Technique S. Hertz and J. Lerman, Boston—p. 1179
Experimental Observations on Effect of Various Diuretics When Injected Directly into One Renal Artery of Dog E. A. Bartram, Boston—p. 1197
Effect of Heart's Position on Electrocardiographic Appearance of Ventricular Extrasystoles L. N. Katz and W. Ackerman, Chicago—p. 1221
Studies on Electrical Systole (QT Interval) of Heart IV. Effect of Digitalis on Its Duration in Cardiac Failure S. N. Cheer and F. R. Dieuaide, Peiping, China—p. 1241
Studies on Serum Electrolytes VIII. Concentration of Electrolytes and Nonelectrolytes in Serum Following Insulin Administration in Diabetic Patients F. W. Sunderman, J. H. Austin and Priscilla Williams, Philadelphia—p. 1261
Studies of Calcium and Phosphorus Metabolism XX. High Calcium Excretion in Exophthalmic Goiter Is Not Due to Vitamin D Deficiency Dorothy M. Tibbets, Regina McLean and J. C. Aub, Boston—p. 1273
Observations on Intrapleural Pressure and Its Influence on Relative Circulation Rate in Emphysema W. B. Kountz, E. F. Pearson and K. F. Koenig, St. Louis—p. 1281
Quantitative Aspects of Iron Deficiency in Hypochromic Anemia Parenteral Administration of Iron C. W. Heath, M. B. Strauss and W. B. Castle, Boston—p. 1293
Role of Calcium, Phosphorus and Vitamin D in Pregnancy H. O. Nicholas and Evelyn M. Kuhn, Houston, Texas—p. 1313
Studies on Cheyne Stokes Respiration A. J. Anthony, A. E. Colin and J. M. Steele, New York—p. 1321

Toxemias of Pregnancy—Hurwitz and Ohler observed that blood chemistry tests, phenolsulphonphthalein and one hour tests did not help in the differentiation between chronic nephritis and acute toxemias. In the 103 urea clearance tests done on sixty-four patients falling in groups of normal pregnancy toxemias, eclampsia, patients who had toxemia in a previous pregnancy and chronic nephritis patients, the urea clearance checked up well with the clinical diagnoses with only a few exceptions. It was found to be higher than the usual normal limits in normal pregnancy, normal in toxemias, decreased in the acute stage of eclampsia (with a tendency to a rapid return to normal in one case), and low with a high degree of consistency in chronic nephritis. The data suggest a correlation between the high urea clearance and the low blood urea nitrogen in normal pregnancy.

Gastric Juice in Pernicious Anemia—Helmer and his associates studied the gastric juice of forty-seven patients with pernicious anemia and of ten normal persons, after histamine stimulation. The complete dysfunction of the gastric glands in patients with pernicious anemia was demonstrated by the following facts: (1) small volumes of juice containing large amounts of mucus, (2) absence of free hydrochloric acid, with an actual alkaline reaction, (3) practical absence of the gastric enzymes pepsin and rennin, (4) low chloride concentration, (5) high nitrogen and phosphorus values, and (5) no relation between total acid, pH , chlorides, nitrogen and phosphorus as found in normal controls. The quality and quantity of the gastric juice of patients with pernicious anemia has little or no relationship to the maintenance dosage of liver extract.

Exophthalmic Goiter—Hertz and Lerman believe that the discrepancies in the literature as to the blood picture in exophthalmic goiter are probably due to misclassification of the monocytes, a source of error which is reduced to a minimum by the use of the supravital technic. The most marked and characteristic observation in the blood of patients with exophthalmic goiter is a relative and absolute monocytosis. Leukopenia and hypopolynucleosis are the rule. The percentage of lymphocytes is increased above normal in most cases. The basal metabolic rate shows a direct correlation of probable significance with the percentage of monocytes and of polymorphonuclears, respectively, and an inverse correlation of the same order with the percentage of lymphocytes. There is no relationship between the level of metabolism and the total leukocyte count. The most characteristic effect on the blood picture of exophthalmic goiter from the administration of iodine is a reduction both in percentage and in absolute number of monocytes. In addition, there is a moderate decrease in percentage and absolute number of lymphocytes, and a significant increase in the percentage but not in the absolute number of neutrophils. The total number of leukocytes decreases in most cases. The reduction in the number and percentage of monocytes tends to be proportional to the reduction in the basal metabolic rate. The changes in the other cell elements and in the total leukocyte count do not show any such relationship to the basal metabolic rate. The immediate effect of operation is to increase the total number of leukocytes, owing chiefly to the increase in the number of polymorphonuclear cells and monocytes. Only the percentage of monocytes is significantly changed. The final changes in the blood picture following operation are qualitatively the same as those produced by iodine. The total white blood cell count is reduced slightly. The reduction in metabolism is proportionately greater than the change in the blood picture.

Journal of Lab and Clinical Medicine, St. Louis

18 1110 (Oct.) 1932

- Serum Proteins and Glaucoma. A. C. Krause. Baltimore.—p. 1
 Nonglucose Reducing Bodies in Diabetic Blood. R. J. Pickard and F. W. Godwin. San Diego, Calif.—p. 3
 Angioneurotic Edema: Its Relation to Bacterial Hypersensitivity. S. E. Dorst and Ethel Hopflin. Cincinnati.—p. 7
 Alleged Clinical Intestinal Actions of Apocodeine. A. B. Stockton and P. E. Hoffmann. San Francisco.—p. 12
 Detoxification with Especial Reference to Sodium Ricinoleate. I. T. H. Rider. Cincinnati.—p. 15
 Blood Iodine Studies. I. Quantitative Determination of Iodine Content of Blood. C. B. Davis and G. M. Curtis. Chicago.—p. 24
 Effect of Sodium Thiocyanate on Action of Anesthetic and Narcotic Drugs. T. M. Burkholder. Chicago.—p. 29
 Microscopic Slide Precipitation Tests for Diagnosis and Exclusion of Syphilis with Sore Fluid. Preliminary Report. B. S. Kline, S. Littmann and J. V. van Cleave. Cleveland.—p. 42

Journal of Nervous and Mental Disease, New York

70 425-552 (Nov.) 1932

- *Sexual Development of Boys with Especial Reference to Appearance of Secondary Sexual Characters and Their Relationship to Structural and Personality Types. P. E. Kubitschek. St. Louis.—p. 425
 The Education of a Physician. G. Draper. New York.—p. 452
 Chondroma of Falx Cerebri. A. Verbruggen and J. R. Learmonth. Rochester, Minn.—p. 463
 Friedrich's Ataxia Associated with Multiple Cerebral Lesions. K. Lowenberg and R. W. Waggoner. Ann Arbor, Mich.—p. 467
 Chair Used for Spinal Puncture. H. E. Kiene and A. E. O'Donnell. Providence, R. I.—p. 477

Sexual Development of Boys—Kubitschek presents a study which represents the results of an examination of 730 boys, aged from 9 to 18 years, concerning their sexual development. Structural type and personality makeup. From this study he concludes that sexual development in boys is slow between the ages of 9 and 12 and rapid between the ages of 13 and 15, again slowing up after the fifteenth year. The development of the primary sex characters usually precedes that of the secondary sexual characters and is most marked during the thirteenth and fourteenth years. The secondary sexual characters develop at a more uniform rate over a longer period. He found a marked variation in both the time of onset and the rate of development of both primary and secondary sexual characters. This was particularly true in the 13, 14 and 15 year group. Variation in age and rate of sexual development in Negro boys corresponded closely to that of

the white boys. Striking variations between the degree of development of the primary and secondary sexual characters were frequently encountered. An interesting relationship was found between structural type and development of secondary sex characters, retarded development predominated in those of asthenic habitus, advanced development predominated in those of athletic and pyknic habitus. No definite relationship was established between structural and personality types.

Journal of Pharmacology & Exper. Therap., Baltimore

40 251-374 (Nov.) 1932

- Observations on Pharmacology of Mitragnyne. K. S. Grewal.—p. 251
 Problem of Intestinal Antisepsis. Experimental Observations on Mice. J. G. Graham. Glasgow, Scotland.—p. 273
 Method for Determination of Small Amounts of Parathyroid Hormone. B. Hamilton and C. Schwartz. Chicago.—p. 285
 Effects of Combinations of Potassium Iodide with Acid Anterior Pituitary Extracts with Armour's Anterior Pituitary, and with Thyroid Substance on Basal Metabolism in Guinea Pigs. W. J. Siebert and E. W. Thurston. St. Louis.—p. 293
 Action of Physostigmine on Different Regions of Heart Tested on Isolated Strips from *Chrysomys Belli*. C. W. Greene and K. E. Maneval. Harriman, Tenn.—p. 303
 Effect of Caffeine on Melanophores of *Fundulus*. F. J. Brinley.—p. 325
 Vasodilator Action of Sodium Ethyl (1 Methyl Butyl) Barbiturate (Nembutal 844) as Measured by Thermic Changes. H. G. Richter and A. W. Oughterson. New Haven, Conn.—p. 335
 *Therapeutic Results with Bismuth Subnitrate in Hypertensive Arterial Disease. E. J. Stieglitz. Chicago.—p. 343
 Action of Quinidine on Heart in Normal Unanesthetized Dog. H. Gold and W. Modell. New York.—p. 357

Bismuth Subnitrate in Arterial Disease—Stieglitz believes that successful curative therapy in hypertensive arterial disease involves the eradication of active etiologic sources of arteriolar irritation and arteriolar relaxation with mild vasodilatation sufficiently prolonged to permit of rest of the fatigued and hyperirritable neuromuscular apparatus. Bismuth subnitrate, through the gradual prolonged liberation of nitrite ions in the intestinal tract, is a mild but persistent arterial dilator, or arterial sedative. Bismuth subnitrate not only reduces the arterial tension in spastic hypertonia during the period over which it is administered but, if the administration is prolonged sufficiently to permit of arteriolar rest, the arteriolar hypertonia frequently does not recur. It assists in reduction of the physiologic burden of the injured structures, namely, the medial musculature of the arterioles. The therapeutic results obtained in hypertensive arterial disease with bismuth subnitrate evaluated several years after the institution of therapy are most encouraging and gratifying. In the presence of extensive arteriolar sclerosis or active etiologic sources of arteriolar irritation, bismuth subnitrate is inadequate, as would be any other mild vasodilator. Bismuth subnitrate is nontoxic in the dosage employed, 30 grains (2 Gm.) a day or less. In angina pectoris associated with hypertensive disease, bismuth subnitrate appears to reduce the frequency and severity of anginal attacks.

Kansas Medical Society Journal, Topeka

33 393-434 (Nov.) 1932

- New Modification of Aschheim-Zondek Test for Pregnancy. R. A. West. Wichita.—p. 393
 Angina Pectoris: More Recent Aspects and Treatments. C. E. Partridge. Emporia.—p. 397
 New Symptom Complex. I. J. Wolf. Kansas City, Mo.—p. 401
 Diabetic Coma with Asthenic Uremia. H. E. Marchbanks, Pittsburgh and J. D. Graham. Columbus.—p. 403

Kentucky Medical Journal, Bowling Green

30: 579-628 (Nov.) 1932

- Clinical Study of Pyretotherapy (Fever Treatment). C. Pope. Louisville.—p. 593
 Tubal Twin Pregnancy. S. P. Garrison. Bellevue.—p. 606
 Malnutrition: Improved Method of Treatment. F. M. Stites and J. Stites. Louisville.—p. 606
 Bleeding from the Rectum. R. C. Alley. Lexington.—p. 608
 Study of Arterioles in Hypertensive Heart Disease Without Hypertension. Case Report. E. F. Horne, M. M. Weiss and Marion F. Beard. Louisville.—p. 610
 The Privilege to Serve. L. L. Solomon. Louisville.—p. 613
 Suboccipital Decompression in Treatment of Brain Injuries. Three Illustrative Cases. B. F. Zimmerman. Louisville.—p. 613
 Agranulocytosis: Report of Two Cases. J. Q. Taylor. Paducah.—p. 616
 Fatal Hemorrhage Following Erosion of Internal Carotid Artery. A. E. Cohen. Louisville.—p. 619
 Retro-laryngeal Abscess in a Child with Autopsy Findings. C. T. Wolfe. Louisville.—p. 621
 Diagnosis and Treatment of Borderline Hyperthyroidism. W. O. Johnson. Louisville.—p. 623

Laryngoscope, St. Louis

42 821 900 (Nov.) 1932

- Method of Classifying Audiograms S R Guild, Baltimore—p 821
 Observations on Hearing of One Thousand Nine Hundred and Eighty Individuals Biometric Study A Ciocco, Baltimore—p 837
 Cytologic and Bacteriologic Studies of Otitic Disease. L W Dean, St. Louis—p 857
 Mastoid Roentgen Pathology L J Gelber, Newark, N J—p 864
 Modification of Lautenschlaeger Operation for Surgical Treatment of Ozena A Wachsherger, New York—p 870
 Nasopharyngeal Fibroma Two Cases W Spielberg, New York—p 872
 Chronic Ear Discharge Dry Treatment Method E M Freund, Albany, N Y—p 877
 Iodine Injection Therapy in Otorhinology New Method of Treating Nasal and Aural Catarrhal Conditions J Rosenberg, New York—p 883
 *Laryngeal Stenosis Growth of Larynx as Factor in Treatment. C Jackson and C L Jackson, Philadelphia—p 887

Laryngeal Stenosis—The Jacksons consider that the greatest factor in the successful treatment of stenosis of the larynx in children is the increase in size of the larynx during the period of general growth of the child. To obtain the utmost advantage of growth, however, it is necessary to maintain a lumen and to force the child to breathe through it, by partial corking of the cannula. The larynx will not grow properly or adequately if the child is allowed to breathe freely through the neck. In most cases the lumen can be maintained by direct laryngoscopic dilation, combined with graduated continuous corking, over a long period of time. In a few cases other methods by rubber tube or otherwise are necessary, but, whatever the method, the most important thing is to force the growth of the larynx. The utmost conservatism as to surgical procedure is fundamental in dealing with the larynx of a child. Radical measures, especially when accompanied by the removal of tissue or destruction of cartilage by secondary suppuration, may ruin the larynx beyond hope of cure.

Medical Annals of District of Columbia, Washington

1 281 304 (Nov.) 1932

- Appraisal of Character of George Washington J B Nichols, Washington—p 281
 Diagnosis of Primary Tumors of Bone by Means of Roentgen Ray C Moore, Washington—p 285
 Present Status of Renal Sympathectomy W P Herbst, Washington—p 288
 Colectomy for Chronic Ulcerative Colitis and Polyps Report of Case E Horgan, Washington—p 292
 Modern Methods of Testing Liver Function S M Rosenthal, Washington—p 294

Medical Journal and Record, New York

136 397 440 (Nov 16) 1932

- Diabetes Prevention and Importance of Early Correct Treatment K Eisenbud, New York—p 397
 Biophysiologic Appetizers in Nutrition of Child G D Scott, New York—p 400
 Comparative Study of Ultraviolet Ray Intensity of Sun in Miami, Florida C Scheffel, Miami, Fla—p 403
 Primary Sarcoma of Liver in Seven Month Infant L F Bender, Philadelphia—p 405
 Allergy in Tuberculosis Preliminary Report of Ten Cases B Thompson, Tucson, Ariz—p 406
 Vertebral Arthritis W J Moore and D Kyle, Glasgow, Scotland—p 407

Northwest Medicine, Seattle

31: 503 548 (Nov.) 1932

- Economic Studies of State Association H J Whitacre, Tacoma, Wash—p 503
 Health Insurance in State of Washington A H Peacock, Seattle—p 505
 Legislative Proposals Relative to Medical Aid Law J T Rooks, Walla Walla, Wash—p 510
 Medical Care of the Injured Workman A Layman's Attitude on this Subject F P Foisie, Seattle—p 512
 Studies in Pierce County W D Read, Tacoma, Wash—p 514
 Medical Care of the Veteran H G Willard, Tacoma, Wash—p 518
 Interrelationship of Medical Profession and the American Medical Association J A Pettit, Portland, Ore—p 523
 Report of Delegate to American Medical Association W B Penney, Tacoma Wash—p 524
 *Postoperative Graves' Disease I Bram Philadelphia—p 526
 Foreign Bodies in Urinary Bladder E M Bevis, Tonasket, Wash—p 528
 The New Concept of the Vitamin F B MacKenzie, Seattle—p 530
 Outline of History of Medicine in Pacific Northwest O Larsell, Portland, Ore—p 532

Postoperative Exophthalmic Goiter—Bram found that, out of a total series of nearly 4,300 cases of exophthalmic goiter, 562, or approximately 13 per cent, occurred in patients

who had undergone one or more thyroidectomies. Postoperative exophthalmic goiter may occur in the following forms: persistence in varying degree of the original syndrome without an intervening period of apparent normality, recurrence of symptoms after weeks, months or years of apparent normality, the existence in combination of so-called hypothyroidism and hyperthyroidism with or without a brief period of apparent well being immediately following thyroidectomy, persistence or recurrence of the symptoms with a complicating acromegaly, and persistence of the syndrome with the superimposition of a major psychosis, usually in the form of manic-depressive insanity. The author concludes from his observations that exophthalmic goiter is not synonymous with hyperthyroidism nor is it primarily a disease of the thyroid. In the treatment of a syndrome the etiology of which is still unknown, it would also appear that the clinical habit of taking thyroidectomy for granted as the logical therapeutic measure calls for reconsideration. The author reports six cases that are illustrative of this condition.

Ohio State Medical Journal, Columbus

28 745-808 (Nov.) 1932

- Choice of Treatment in Skin and Intra Oral Malignancy Its Relation to Surgery J R Driver, Cleveland—p 765
 Causal Factors in Posterior Positions of Occiput W D Porter, Cincinnati—p 772
 Ocular Symptoms of Brain Tumors W E Bruner, Cleveland—p 776
 Discussion of Industrial Medicine D B Lowe, Akron—p 781
 Neurologic Aspects of Industrial Electrocution L J Karnosh, Cleveland—p 786

Pennsylvania Medical Journal, Harrisburg

36 73 156 (Nov.) 1932

- Concerning Some Economic Implications of Modern Medicine A H Freiherg, Cincinnati—p 73
 Pediatric Suggestions N D Gannon, Erie—p 76
 Examination of Gynecologic Patients F C Hammond, Philadelphia—p 81
 Complete Unilateral Ophthalmoplegia Externa Due to Ethmosphenoiditis Recovery After Ethmosphenoid Eventeration E Stieren and G J McKee, Pittsburgh—p 84
 *Treatment and End Results in Traumatic Strictures G J Muellerschoen, Philadelphia—p 85
 Syphilis Its Social Aspects W D Whitehead, Scranton—p 88
 Roentgenographic Findings of Chest in Hemoptysis Study of Seventy Five Cases J T Farrell, Jr., and R. M. Smith, Philadelphia—p 94

Treatment of Traumatic Strictures—Muellerschoen points out that from 85 to 90 per cent of strictures may be cured by gradual dilation when the patient will cooperate. Internal urethrotomy may be indicated in permeable strictures of gonorrheal origin. Strictures complicated by sinus, gross infection, fibrosis, resilience, false passage or multiple narrowings demand at least an internal and external urethrotomy combined. This procedure may not suffice. Urethrectomy is practiced when possible in instances of extreme resilient fibrosis, in angulation and marked sinus and in angulation or vicious anastomosis of the channel. Urethrostomy is the choice if the other methods have failed. Suprapubic drainage is the last recourse. It is often an emergency operation. Some cases after a drainage period may warrant more refined surgical attempts such as urethrectomy or urethrostomy. One should impress on the patient the importance of continued dilation after the stricture has been dilated to its normal caliber at regular intervals.

Philippine Journal of Science, Manila

49 305 482 (Nov.) 1932

- Malaria and Anopheles Reconnaissance in the Philippines R L Holt and P F Russell, Manila—p 305
 New or Little Known Tipulidae from Eastern Asia (Diptera) XI C P Alexander, Amherst, Mass—p 373
 Unreported Fungous Disease of Philippine Migratory Locust G M Reyes Manila—p 407
 Artificial Infection of Coconut Leaf Miner with Beauveria Globulifera (Spegazzini) Picard G M Reyes Manila—p 419
 The Philippine Species of Parasterina J M Mendoza, Manila—p 443
 Nitrogen Distribution in Leaves of Philippine Camphor Trees J Marañon, Manila—p 461
 Pseudomycetoma in the Philippines Report of One Case C Monserrat, Manila—p 469

Public Health Reports, Washington, D C

47 2217 2244 (Nov 25) 1932

- Sickness Among Male Industrial Employees During Second Quarter of 1932 D K Brundage—p 2219

Southwestern Medicine, Phoenix, Ariz

16 443-484 (Nov.) 1932

- *The Neurotic Patient The Ever Present Problem. W C Menninger, Topeka Kan—p 443
Pure Milk and Human Nutrition J A Tobey New York—p 450
Treatment of Indigestion Underweight and Allergy with Old and New Forms of Digestive Agents W D Sansum Santa Barbara, Calif—p 452
Aschheim Zondek Test Aid in Differential Diagnosis of Pregnancy F B Sharp and M C Flohr, Phoenix, Ariz.—p 462

The Neurotic Patient.—Menninger classifies the neuroses into what are called actual neuroses and the psychoneuroses. The actual neuroses exhibit themselves primarily as physical disorders and the causative factors are predominantly physical in character. The psychoneuroses, on the other hand, do not present any physical basis but exhibit themselves primarily as strictly mental disturbances. They are psychogenic in origin, with responses conditioned entirely by the individual's development. The primary cause for the neurosis is a persistence of infantile trends or infantile behavior patterns or groups of cases centering around an abnormal psychosexual development, either by arrest or by distortion of the normal development of the individual, or by the process of regression. To understand the nature of the neuroses, one must understand not only the etiology factors but also the psychologic steps that take place in the individual to make him develop the symptoms of physical complaints, hysterical paralyses, fears, compulsions and the like. If one fully understands the psychologic nature of the neuroses, one should be able more adequately to fit the treatment to the illness. It is essential to recognize that one cannot treat a psychologic illness simply with physical measures, with any more success than one can treat physical illness with merely psychologic measures. The author concludes that the treatment must depend on the type and the stage of development of the neurosis and should be physical, environmental or psychologic.

Tennessee State Medical Assn. Journal, Nashville

25 431 474 (Nov.) 1932

- Recent Advances in Management of Prostatic Obstruction Prostatic Resection Versus Prostatectomy T D Moore Memphis—p 431
Surgical Treatment of Far Advanced Cases of Pulmonary Tuberculosis. A Blalock Nashville.—p 440
Peritrichal Abscess W D Stinson Memphis—p 443
*Treatment of Chronic Suppurative Otitis Media with Iodine Powder G M Maness Nashville.—p 445
Pediatric Organization R A Strong New Orleans—p 450
Middle Ground J S Freeman Springfield—p 454
Allergy in Children Some Points in Diagnosis J C. Overall Nashville.—p 458

Chronic Suppurative Otitis Media—Maness presents the results in a series of sixty-eight patients with chronic suppurative otitis media treated with iodine powder. His method of treatment was as follows. Polypi or granulations were removed from the middle ear as thoroughly as possible. Contributory causes, such as the adenoids or tonsils, were removed, or paranasal sinusitis was treated. Some patients refused to have their tonsils and adenoids removed. All irrigations and medications in the ears were prohibited. Careful attention against getting water in the ears was advised. All secretions were removed as thoroughly as possible from the external auditory canal and middle ear by means of cotton applicators. Gentle suction is advised as an aid to freeing the middle ear of secretions. The careful removal of all secretions possible is of vast importance, if success with the treatment is to be expected. In the insufflation of a 2 per cent iodine powder, it is important that as much of the powder as possible reaches the middle ear through the perforation. Treatments were given two or three times a week depending on the quantity of secretion. The more abundant the secretion, the more rapidly is the powder dissolved. The author concludes that a small number of chronic otorrheas develop fatal complications. The radical mastoid operation is associated with considerable mortality risk and should be resorted to only when conservative treatment has failed or when definite indications other than a chronic draining ear are present. The dry treatment of chronic suppurative ears is the best nonoperative measure. Chronic suppurative ears should not be treated by repeated irrigations. Iodine dusting powder is a valuable adjunct in the treatment of chronic suppurative otitis media. Obtaining a dry ear is no guaranty that recurrence of drainage will not occur. All contributory causes of chronic middle ear suppuration should be removed if possible.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

2 997 1042 (Dec. 3) 1932

- Observations on Etiology and Symptomatology of Disseminated Sclerosis W J Adie.—p 997
Adamantinoma of Tibia Etiology and Pathogenesis. B J Ryle.—p 1000
*Displacement of Upper Femoral Epiphysis Twenty Three Cases V J M Taylor—p 1003
Case of Malignant Thymoma. Margaret Leslie and W S Bell.—p 1006
*Varicella in Old Age J D Rolleston—p 1007
Design of Direct Pedicle Flaps H D Gillies—p. 1008
Patient with Four Ureters O Addison—p 1008
Monilethrix Twenty Two Cases J G Tomkinson—p 1009

Displacement of Upper Femoral Epiphysis—Taylor reports the results of a study of twenty-three cases of displacement of the upper femoral epiphysis. Of these, thirteen were under observation long enough to make it possible to consider the results obtained by treatment, while ten were recent. No cases were recorded in which the history and roentgenograms did not definitely establish the diagnosis. In persons over the age of 25 it is often impossible to distinguish roentgenographically between old cases of "slipped epiphysis" and old cases of Perthes disease. Such cases were excluded. Both from the history and from the roentgenographic appearances it was possible to differentiate two types of displacement. First, the type due to a single gross trauma, in which the condition is probably one of fracture through the juxta-epiphyseal line, though it is held by some that the separation takes place through the actual epiphyseal cartilage. In this type there is definite, complete loss of continuity between diaphysis and epiphysis. The second type is that in which the deformity develops gradually and there appears to be a bending of the neck of the femur, somewhat similar to that seen in the softened long bones of the rachitic child. The pathologic anatomy of the condition preceding the actual slip is obscure. Gentleness of manipulation and prolonged protection from weight bearing are essential features in the treatment. Prolonged extension on a frame appears to be the most suitable form of "manipulation" in the gradual slip type.

Varicella in Old Age—Rolleston gives the case history of a woman, aged 76, whom he had been asked to see in his capacity as one of the smallpox consultants to the London County Council. The patient's age and the severity of her illness suggested the possibility of smallpox. The distribution of the lesions, however, and their size, shape and multiformity, as well as the history of their appearance on the first day of disease, indicated chickenpox. The diagnosis, moreover, was subsequently confirmed by a history of exposure to the disease within the previous fortnight at a hospital where she had been under treatment by high voltage roentgen therapy for lymphosarcoma. On admission to the hospital there was considerable constitutional disturbance and the temperature was 102 F. The presence of lymphosarcoma was indicated by enlarged lymph nodes in the neck, axillae and groins. In addition to its typical appearance and distribution elsewhere, the eruption of chickenpox was confluent over the parts of the left side of front and back of the chest and left arm, where she had undergone roentgen therapy. The temperature finally became settled on the third day after admission, and there was a rapid improvement in the general condition. The lesions in the area in which the eruption was confluent showed some tendency to ulcerate, but ultimately complete healing took place and the patient was discharged without any complications having occurred. There also appeared to be some diminution in the size of the enlarged lymph nodes in the axillae at the time of her discharge.

East African Medical Journal, Nairobi

9 215 243 (Nov.) 1932

- Nairobi Plague Prophylactic Further Notes on Preparation and Potency F P G de Smidt.—p 22
Ambulatory Treatment of Ulcer of Leg by Strapping A. R. Esler—p 23
Melanotic Sarcoma Following Chronic Ulcer Case. R. B. Michener—p 24

Irish Journal of Medical Science, Dublin

No 79 333 380 (July) 1932

- Some Aspects of Biochemistry F G Hopkins—p 333
 Some Lesions in Region of Pituitary Body A. A. McConnell—p 351
 A Visit to the New Cardiac Department of the London Hospital P T O'Farrell—p 361
 Joseph Black, M D His Connection with Dublin J Bell—p 370

No 83 631 678 (Nov) 1932

- Discussion on the Teaching of Special Subjects in Medical Curriculum
 The Teaching of Dermatology W G Harvey—p 631
 Id Neurology F C Purser—p 635
 Id Tuberculosis E T Freeman—p 636
 Id Pediatrics R E Steen—p 637
 Id Ear, Nose and Throat R R Woods—p 641
 Id Closing Remarks T G Moorhead—p 644
 Results of Appendix Operations R A Stoney—p 645
 Bacteriologic Content of Dublin Pasteurized Milk G C Dockeray and Barbara A M Scott—p 653
 Diagnosis and Treatment of Chronic Urethritis F Gill—p 665

Journal of Laryngology and Otology, Edinburgh

47 725 796 (Nov) 1932

- *Malignant Disease of Larynx and Pharynx R Stewart Harrison—p 725

Note on Pathologic Museum (Otolaryngologic Section) of British Medical Association Centenary Meeting, July, 1932 E D D Davis and T Cawthorne—p 756

Malignant Disease of the Larynx and Pharynx—Stewart-Harrison discusses the principles that are involved in the protracted-fractional method of applying high voltage roentgen treatment, describes the details of the method in its application to tumors of the larynx and pharynx, and presents a series of illustrative examples showing variation from case to case. The technic may be summarized as follows: A stabilivolt transformer, Müller tubes, a tube tension of at least 170 kilovolts and tube current of 3 milliamperes are employed. The radiation is filtered through 1 mm of aluminum and 13 mm of copper and the resultant half-value layer is equivalent to 135 mm of copper. The focus-skin distance varies between 65 and 75 cm; it is adjusted to a radiation intensity of 25 roentgens a minute measured in air (r/l a minute), a delivery of 36 r/l a minute at a focus-skin distance of 50 cm. The chosen fields include the primary tumor and the area of regional metastases. For all tumors two lateral fields are employed and in the case of tumors of the hypopharynx and larynx often three. The size of the fields is measured and from the curves of Jacoby and Liechti the intensity of the radiation on the surface (r/o) can be estimated. For example, for a field size of 200 sq cm 500 r/l will be necessary to produce a skin erythema. For a standard field (48 sq cm.), according to the author's measurements, 600 r/l is necessary for a skin erythema. The surface dose is therefore $6/5$ the dose measured in air. It is the therapeutically important dose and is referred to as r/o . When no contraindications are present, the patient is irradiated daily on the side of the lesion. On five days in the week, one of the other fields is treated in addition. With infrequent exceptions, 180 r/l is applied at a single sitting. He reviews 144 cases of malignant disease of the larynx and pharynx and summarizes the results of the treatment since its introduction to Zurich by Schinz in 1929. The local success figure is defined as the number of patients who have become free from signs and symptoms as a result of the treatment and up to the present time have not developed a local or regional recurrence. The optimal percentage local success is the ratio of this figure to the number of cases in which the treatment has been completed. Since results over a period of five years are not available, the figures for the optimal local success have been evaluated and its advantages and disadvantages discussed. The proportion of local success in this series is 55 per cent. The results are analyzed on a basis of the situation, nature and extent of the various growths. The results obtained in Zurich, 1919-1928, together with the results of some other authors, are similarly analyzed for the purpose of comparison. No attempt has been made to be all inclusive. The author concludes that the protracted fractional method of roentgen treatment is the treatment of choice in tumors of the epipharynx, mesopharynx and hypopharynx. In the case of the larynx it should always be taken into consideration.

Journal of Mental Science, London

78 769 1043 (Oct) 1932

- Development of Care of Insane in Scotland Presidential Address at Ninety First Annual Meeting of the Royal Medico-Psychological Association Held at Stirling, July 13 to 16, 1932 R B Campbell—p 774
 The Place of Psychiatry in Medical Education R A Noble—p 793
 Some Critical Reflections on Prevalent Notions Regarding "Affect" and "Emotion" J H MacDonald—p 803
 Psychoanalytic Approach to Classification of Mental Disorders E Glover—p 819
 *Review of Seven Years' Malarial Therapy in General Paralysis W D Nicol—p 843
 *General Paralysis Results of Eight Years of Malarial Therapy B Reid—p 867
 Study in Pyretotherapy T D Power—p 878
 Nembutal in Mental Hospital Practice D MacMillan—p 892
 *Note on Relationship Between Blood Cholesterol and Hyperglycemia Index in Manic Depressive Psychosis Madeline R Lockwood—p 901
 Studies in Experimental Psychiatry III p-Score and Inhibition for High p Praecox Cases W Stephenson—p 908

Malarial Therapy in Dementia Paralytica—Since the introduction of malaria therapy for the treatment of dementia paralytica, the percentage of good remissions in Nicol's female cases at Horton is low compared with the results of other observers. There is little to be found in the literature concerning the disease as seen in the female. Leroy and Medakovich, in a communication on paralysis in the female, write that the disease is less severe and tends to follow a more insidious course. They also report that the disease in women is more advanced before they become certified. This may explain the high percentage of dementing forms in his series. The predominance of the dementing form in women is probably responsible for the lower rate of remissions following treatment. The material the author has to work on is mixed, the age incidence and duration of disease vary within wide limits, the proportion of the different clinical types is unequal. From the point of view of prognosis he lays most stress on the clinical type assumed and on the duration of the disease before treatment. His experience is that remissions are obtained by the first course of fever and that subsequent courses of malaria exert no influence on the mental or physical progress. Benign tertian malaria is the most convenient species, but access should be available to quartan malaria for those patients who are immune to benign tertian malaria or who are in a poor state of health, which might be endangered by the more severe type of fever. Whether second and further courses of malaria are necessary to maintain the latency or suppression of the syphilitic process cannot yet be decided. When desirable, the author has an ample source of treatment methods in the different species of malaria, including malignant tertian malaria, provided the patient can be assured of skilled and trained supervision. He concludes that the application of malaria to medicine has opened a new field of research, not only in malaria itself but in the disease to which it is applied.

Dementia Paralytica—Reid presents the after-history of patients treated by malarial inoculation for dementia paralytica since the introduction of this method of treatment at the Whittingham County Mental Hospital in July 1922. He states that, of all the patients suffering from dementia paralytica treated with malaria, 31 per cent are sent home improved each year. From six to nine years after treatment with malaria, 12 per cent of the patients have recovered from their illness and are living at home. From one to five years after treatment, 24 per cent of the patients have recovered and are living at home. Malarial treatment improves the physical condition of the patients suffering from dementia paralytica even when mental improvement does not result. Seventy-six per cent of the patients are living one year after treatment, 50 per cent four years after treatment and 22 per cent nine years after treatment. Malarial treatment of these cases admitted to the hospital is not without danger, and 13 per cent of the patients die within one month of inoculation. The prognosis is best in those patients who have had symptoms of the disease present for seven months or less prior to treatment. Reinoculation with malaria is of no special benefit in the treatment. Malarial treatment has little or no effect on the physical signs present in the nervous system.

Blood Cholesterol and Hyperglycemic Index in Manic Depressive Psychosis—A sustained hyperglycemia and quantitative changes in the blood cholesterol are common observa-

tions in the manic depressive psychoses, and, since both may be dependent on a faulty endocrine balance, parallel observations of the hyperglycemic index and blood cholesterol have been made by Lockwood in twenty-four cases in order to determine whether any relationship exists between the two values. She found that a relationship does exist between the values. The blood cholesterol content showed a delay in the return to normal as compared with the dextrose tolerance curve. When the hyperglycemic index falls to zero, the cholesterol level lies at the upper limit of normal. A rise in the hyperglycemic index was associated with quantitative changes in the blood cholesterol of such a nature that the two values bore an inverse ratio to each other. In three cases in which the test was repeated at different phases of the illness, variations in the hyperglycemic index were accompanied by variations in the cholesterol level.

Journal of Neurology and Psychopathology, London

13:97 192 (Oct.) 1932

- Brain Structure in Relation to the Mind Illustrated by New and Original Models. R. J. A. Berry.—p. 97
 *Tumors of Brain Associated with Marked Pleocytosis in Cerebrospinal Fluid. H. H. Merritt and M. Moore.—p. 118
 *Mental Changes Associated with Pernicious Anemia. A. Piney.—p. 127
 Partial Deafness Simulating Congenital Auditory Imperception. Case E. Mildred Creak.—p. 133
 Lesions Produced in Brain of Rabbits by Injection of Indian Ink and of Argyrol. D. Orr.—p. 157

Brain Tumors—Merritt and Moore report two cases of glioma of the anterior portion of the corpus callosum and frontal lobes which showed a turbid cerebrospinal fluid. They discuss the literature on this subject and explain the presence of the polymorphonuclear cells in the cerebrospinal fluid of cases of brain tumor as being due to drainage of cells from the area of symptomatic inflammation occurring around foci of necrosis close to the ventricles.

Mental Changes in Pernicious Anemia—According to Piney, it might be profitable to examine the blood in all cases of mental disorder in which there is even the slightest clinical evidence of anemia. In a case observed by him, complete restoration occurred. It is particularly interesting to observe that the disappearance of the mental symptoms preceded the cure of the anemia. The very fact that suitable treatment of the blood may be followed by cure of the mental condition suggests that such patients should be kept in their own homes or in the wards of a general hospital for a month or two instead of being certified immediately. If this were done, much distress might be avoided, as presumably a considerable percentage of cases would be saved from the stigma of insanity. It seems almost certain that, if the pernicious anemia and the mental symptoms have persisted for a long time, the latter will not respond to treatment even if the former is adequately dealt with. In the last stages of a case in which treatment has been long delayed, complete dementia will inevitably develop.

Lancet, London

2: 1145 1198 (Nov. 26) 1932

- Liberal Education of the Body. L. P. Jack.—p. 1145
 Hematuria. A. Fullerton.—p. 1149
 Hypertensive Retinitis. D. McAlpine.—p. 1152
 Cases Tensions in Lateral Ventricle of Brain. J. A. Campbell.—p. 1156

Hematuria—Fullerton gives the present status of the treatment of hematuria. In severe cases the patient should be kept at rest in bed and morphine if not contraindicated should be administered. Calcium chloride or lactate should be given for a few days. Preparations of ergot may be tried and sterilized horse serum or inhalation of carbon dioxide as recommended by Wright may be of use. Above all the underlying cause must be sought and treated. Tumors, calculi and tuberculosis demand surgical treatment if suitable for operation. Renal hematuria of the type known as essential may tax the resources of the surgeon to the utmost. Decapsulation incisions into the pelvis to deal with the papilla is involved and incision into the parenchyma have all been tried without success in such treatment. If the surgeon is satisfied that no grave disease is present instillation into or irrigation of the pelvis or the kidney with solutions such as those of

silver nitrate may succeed in arresting the hemorrhage. Removal of the offending organ is a radical procedure justifiable only if all other methods fail and the patient's life is in danger. To control hemorrhage of bladder origin, pending more radical measures, epinephrine may be employed. A more lasting effect may be produced by irrigation with silver nitrate solution. If massive clotting has taken place, an evacuating catheter, similar to the catheters used for litholapaxy, may be used to remove the clots. It may even be necessary to perform cystotomy. Raising the foot of the bed by diminishing the blood supply may be of service in some cases. The author has never found it necessary to pack the bladder. Bleeding from the anterior urethra can be arrested by pressure. Bleeding from the bulbous or membranous urethra may be controlled by pressure applied to the perineum. Finally, no patient ought to be allowed to die of hemorrhage without an attempt being made to restore him by blood transfusion or intravenous injection of such preparations as gum saline solution.

Hypertensive Retinitis—McAlpine believes that the term "hypertensive" should replace that of "albuminuric" or "renal," as suggested by Fischberg and Oppenheimer, because the retinal changes, usually described under these names, may occur in the absence of any appreciable renal disease. Moreover, evidence is accumulating in favor of the effects of a widespread arteriolar constriction, the results of which may also be apparent in the fundus, brain, heart and extremities. It is true that the resulting changes in the kidney frequently lead to a fatal termination in uremia, but this fact does not warrant the use of the adjectives "albuminuric" or "renal." In other cases, a form of true nephritis has been the cause of the hypertension, the latter, however, is the agent responsible for the retinal changes. The adjective "hypertensive" expresses the essential factor—hypertension—whether this precedes or follows renal disease. This form of retinitis is commonly seen in persons under the age of 50. The hypertension, which is usually marked, may develop rapidly or, having been present for some years, may show a sudden accession. Constriction of the retinal arterioles is the earliest change, and this is followed by retinal edema, hemorrhages and exudates, which initially may take the form of cotton-wool patches. The balance of evidence seems to favor the view that such changes are due to ischemia. In young persons there may be no signs of retinal arteriosclerosis at the commencement, and therefore the retinal changes may occur independently of degenerative changes in the walls of the vessels, although, if the hypertension persists, these will share the fate of the arterioles in other parts of the body. Papilledema, though frequently present, is not a necessary accompaniment of the retinal changes, if mild in degree and accompanied by peripapillary edema it may be caused solely by local circulatory disturbances. When marked, the principal factor in its production is cerebral edema. Its presence adds to the gravity of the case.

Japanese Journal of Gastroenterology, Kyoto

4: 153 230 (Oct.) 1932

- Studies in Photodynamic Hemolytic Action of Bilirubin. Report I. Presence or Absence of Photodynamic Hemolytic Action Inquiry into Factors Concerned in It After Effects of Action and Presence or Absence of Photodynamic Hemolytic Action in Biliverdin. K. Saeki.—p. 153
 Id. Report II. Influence of Osmotic Pressure on Photodynamic Hemolytic Action and Consideration of Mechanism of the Action. K. Saeki.—p. 166
 Statistical Research on Five Hundred and Sixty Three Cholelithiasis Patients Treated in Second Medical Clinic of Kyoto Imperial University in Ten Years. K. Yagata.—p. 175
 Clinical and Experimental Researches on Porphyrin Bodies. Report I. Case of Acute Porphyrin. I. Matsuo, H. Sakurai and T. Kozaki.—p. 185
 Relation Between Sugar and Cholesterol Bodies in Blood. Report IV. Influence of Ovarial Function on Amounts of Sugar and Cholesterol Bodies in Blood. S. Kusaka.—p. 190
 Id. V. Influence of Bile Acid Salts on Amounts of Sugar and Cholesterol Bodies in Blood. S. Kusaka.—p. 196
 Id. VI. Influence of Administration of Glucose, Phloridzin and Cholesterol on Amounts of Sugar and Cholesterol Bodies in Blood. S. Kusaka.—p. 202
 Fermentologic Study on Various Kinds of Glycogens. Fermentative Action of Glycerol Extracts of Livers of Various Animals on Liver Glycogen of Oyster. T. Haraishi.—p. 209

Paris Médical

2 557 568 (Dec 31) 1932

*Arsphenamine Erythrodermia. G Garnier—p 557

Arsphenamine Erythrodermia—Garnier reviews the symptomatology, diagnosis and treatment of vesiculo-edematous erythrodermia due to arsphenamine therapy. It occurs after the fifth or sixth treatment (or later) and is not to be confused with the erythema of the ninth day. The prodromal symptoms are pruritus, edema and localized erythema. The localized erythema rapidly develops into a generalized erythema characterized by vesiculation, edema and desquamation. The edema is generalized and severe, it is chiefly dermic, hard and elastic. The vesiculation predominates on the extremities and gives rise to profuse oozing resulting in yellow crusts, when the vesicles rupture. Desquamation starts about the tenth day and is abundant. The general symptoms in addition to fever are oliguria, edema and increase in weight. The erythrodermia lasts from six to eight weeks and usually ends in recovery but may terminate fatally through supervening infection or purpura or, occasionally, marasmus. Prognosis is good if the weight decreases, the urines increase and the temperature drops, if the weight decreases rapidly while the oliguria and the elevation of temperature persist, infectious complication is probable. In rare cases the erythrodermia may be segmentary. Sometimes the beginning of the erythrodermia is masked by an eruption of lichen planus which is suddenly transformed into erythrodermia. Spontaneous recurrences of light form and short duration may occur. Renewal of arsphenamine treatment produces an immediate recurrence, even after several years. Keratoderma and melanoderma are frequent sequels. The vivid redness of the beginning local erythema distinguishes it from a vesicular eczema. After the erythema is generalized, it is distinguished from the erythema of the ninth day chiefly by its late appearance and the absence of an infectious syndrome. Once established, it can be differentiated from other erythrodermias only by knowledge of the arsphenamine treatment. Preventive treatment consists in keeping the arsphenamine dosage within the maximum of 0.015 Gm per kilogram of weight and interrupting treatment immediately on the appearance of prodromal symptoms. The treatment of confirmed erythrodermia consists in the daily administration of about 90 drops of a 1:1,000 solution of epinephrine combined with diuretic treatment. Early treatment is important and may sometimes prevent vesiculation and oozing. The appearance of erythrodermia is an absolute contraindication for the future use of arsphenamine. In persons who have had an arsphenamine erythrodermia, the intradermal injection of 0.1 cc of a 1:100 solution of arsphenamine produces a cutaneous reaction years after the attack. The author considers arsphenamine erythrodermia a toxic phenomenon depending on alterations of the sympathetic system.

Presse Médicale

40 1981 1996 (Dec. 31) 1932

Functional Disturbances of Anterior Hypophysis. Relation to Disturbances of Endocrine Equilibrium. M. Aron, C. Van Caulaert and J. Stahl—p 1981

Treatment of Peritonsillar Abscess by Tonsillectomy in Acute Stage. L. H. Leroux—p 1984

*Medullary Complications of Leukemias. J. Olmer and J. Alliez—p 1986

Medullary Complications of Leukemias—Olmer and Alliez report the case of a man aged 49, with myeloid leukemia who, after two months of intense dorsal pain, developed progressive flaccid paraplegia, becoming rapidly total, and syringomyelic dissociation of sensibilities. The spinal fluid was xanthochromic, was spontaneously coagulable, and exhibited albuminocytologic dissociation. The disease exhibited an ascending progression of the Landry type and the patient succumbed in several days under bulbar symptoms. At necropsy a small tumor of myeloid leukemic type, a veritable metastatic myeloblastoma, was found on the level of the second and third dorsal vertebrae with a meningeal and vascular infiltration, which had caused myelomalacic lesions owing to a necrotic process following vascular thrombosis. The author says that most of the medullary complications of leukemia that have been reported occurred in myeloid leukemia, usually in males. Clinically the two essential characteristics of medullary complications are the intensity of the pains that mark the beginning, and the rapidity of the onset and evolution of the paraplegia.

When this syndrome is seen, one should always think of leukemia, as the medullary complications may occur in a leukemia that has not been diagnosed. Anatomically, the medullary complications may be of three types: local or diffuse leukemic infiltration of the spinal cord, vascular lesions, chiefly necrotic softening of the spinal cord following thrombosis, and lesions secondary to compression of the spinal cord.

Revue de Médecine, Paris

49 535 580 (Nov) 1932

Roentgen Therapy of Cancer of Uterus. H. Wintz—p 535

Roentgenologic Diagnosis of Lung Abscess. M. Gilson—p 546

*Hysterosalpingography. Francillon-Lobre and J. Dalsace—p 556

Roentgenology in 1931. C. Guilbert—p 570

Hysterosalpingography—On the basis of their experience with 500 hysterosalpingographies, Francillon-Lobre and Dalsace discuss the indications, contraindications and technic of this method of examination, the interpretation of the roentgenograms, and their diagnostic value. In cases of sterility in which clinical examination of the woman and her husband has revealed no cause for the sterility, hysterosalpingography often permits diagnosis. However, it is not sufficient to inject the iodized poppy-seed oil into the uterus and take a few roentgenograms, it is necessary to study physiologically the filling, the contractions and the emptying of the uterus and the oviducts. Hysterosalpingography is also indicated in cases in which minute clinical examination fails to establish the cause of metrorrhagias, repeated abortions or various gynecologic disturbances, or in the presence of a pelvic tumor that cannot be exactly delimited. In these cases the roentgenogram is a valuable element of diagnosis, particularly if there is close collaboration between the roentgenologist and the gynecologist. In addition to pointing out the diagnostic value of hysterosalpingography in these various abnormal conditions, the authors recommend it as a therapeutic measure of the first rank in sterility. They found that a fairly high percentage of the young women on whom hysterosalpingography was performed for purely diagnostic purposes became pregnant in the months following the intervention.

Pediatria, Naples

40 1309 1321 (Dec 15) 1932

*Erythema Nodosum and Tuberculosis. A. Laurinsich—p 1309

Congenital Malaria Case. A. Pinelli—p 1317

Erythema Nodosum and Tuberculosis—Laurinsich reviews the literature and states that 96 per cent of all patients with erythema nodosum show a positive reaction to tuberculin. The allergy in erythema nodosum does not follow eruption but is already present during the stage of prodromal fever, some authors maintain that it is most intense previous to eruption. The nodose eruption appears as soon as tuberculin allergy commences. This is substantiated by the fact that allergy is present before the eruptive fever, hyperallergy taking place afterward. Therefore, the beginning of erythema nodosum coincides with the end of the period of incubation of tuberculosis. Erythema nodosum, like tuberculosis, occurs mainly in the spring. The author experimented with forty-five patients and obtained positive skin reactions to tuberculin in all of them. He concludes that erythema nodosum is a cutaneous manifestation of a primary tuberculous infection or of the awakening of a latent infection and therefore he considers it an allergic phenomenon.

Policlínico, Rome

39 721 784 (Dec. 15) 1932 Surgical Section

Bacteriologic Research on Right Abdominal Syndrome, Simple or Associated with Cholecystitis or Ulcer. S. Cimino—p 721

Calcemic Rate and Demineralization in Surgical Tuberculous Diseases. R. Galli—p 755

Lipomatous Sclerosis of Kidney Case. S. Scandurra—p 765

*Perforated Right Pyosalpinx Simulating Acute Appendicitis Case. G. Selvaggi—pp 775

Right Pyosalpinx Simulating Acute Appendicitis—Selvaggi reviews the literature and cites the case of a woman, aged 26, with a ruptured pus tube on the right side simulating acute appendicitis. The author states that the perforation is found most often in the ampullar portion, rarely at the uterine insertion. The perforation varies greatly in size. The margins are always well defined and surrounded by a necrotic portion. The symptomatology consists of intense pain, vomiting, shock, small frequent pulse (129-140), shallow respiration of costal

type, rise of temperature (38.5-39 C or 101.3-102.2 F), and rectal tenesmus with empty ampulla. The course of acute perforation of pyosalpinx consists of 1 The phase of shock corresponding to the perforation itself, characterized by sudden and violent pain and frequent and small pulse. 2 The phase of relative calm, characterized by muscle spasm and fever, during which the shock and pain gradually diminish. 3 The phase of spreading peritonitis, which appears rapidly, about the eighteenth hour. In acute appendicitis the symptomatology is milder. The pain begins in the epigastrium or the umbilical region, descends, and localizes itself in the right iliac fossa. The pain is neither sudden nor stabbing and does not, as in perforation, reach its maximum intensity from the beginning but increases constantly, reaching its acme after a few hours. The tongue is coated, the breath foul. The defense mechanism is less generalized and less intense. The author advocates early unilateral salpingectomy as the least traumatizing operation. It can be performed rapidly and it practically does not expose the pelvic cellular tissue to infection. Bilateral salpingectomy is performed when a salpingitis of the other side is also present. For most cases the author advocates unilateral or bilateral castration. Hysterectomy exposes the patient to too much infection. Drainage of the abdominal cavity is done with rubber tubes or with plain gauze strips.

Archiv für Kinderheilkunde, Stuttgart

98 1 128 (Dec. 13) 1932

- Pathogenesis of Pseudoreaction in Diphtheria Toxin Reaction According to Schick. J. Siegl.—p. 1
Influence of Diet of Mother on Development of Fetus. P. Jönén.—p. 32
Observations on Lobus Venae Azygos During Childhood. D. Orosz.—p. 42
Psychogenic ("Onco-genic") Disorders. A. Bretschneider.—p. 51
Effects of Sympathetic Poisons During Childhood. Edith Krüger.—p. 55
*Treatment of Dehydration in Nurslings, Also Remarks on Its Pathogenesis. A. Bratusch-Marrain.—p. 62
Action of Intravenous Hypertonic Dextrose Infusions. E. von György and L. Veszelszky.—p. 70
*Treatment of Influenza in Nurslings and Small Children by Means of Large Doses of Amidopyrine. G. Petrányi.—p. 74
*Clinical Aspects of Osteochondritis Deformans Juvenilis Dorsi (Scheuermann's Disease). F. Eckardt.—p. 81
Transition of Thyroidal Hormone into Milk. S. Konsuloff.—p. 86
Encephalitis Following Chickenpox. P. Mühlenkamp.—p. 89
Influence of Various Salts on Nitrogen Metabolism of Nurslings. E. Rominger and Hugo Meyer.—p. 91
Idem. G. Weber.—p. 93

Treatment of Dehydration in Nurslings.—Bratusch-Marrain considers the comparatively high water content of the tissues of nurslings as the main reason for the disturbances in the water economy so frequent during this age. In the dehydration that develops during pylorospasm, it is necessary to supply the circulation with sufficient amounts of water, but the water must be given either by rectum or by subcutaneous infusion, as oral administration is usually impossible. Conditions are much more complicated in the most severe forms of diarrheal disturbances, such as in intoxication. In this condition the dehydration cannot be overcome simply by the administration of water. The author advances the following theory to explain the peculiar conditions. In severe intestinal disturbances, toxins develop in the intestine, are resorbed and thus enter the circulation. They act particularly on the central nervous system and they have a general effect on the tissues, impairing their water binding capacity. Thus the tissues become dehydrated and the blood contains considerable amounts of free water (not bound to colloids). This water affects the respiratory center, as does increased carbon dioxide content, and causes intensified breathing, the so-called large respiration, by means of which the superfluous water is eliminated through the lungs. This theory of the pathogenesis of the large respiration and of the pulmonary elimination of water, which the author had advanced previously, contradicts the assumption that large respiration is caused by acidosis. In fact, recent experimental investigations have proved that acidosis does not exist and that even alkalosis may be present. The author's theory indicates that the dehydration in nursing intoxication can be counteracted only by treating the main disease, but in the meantime care should be taken that the organism has sufficient water to maintain the circulation and to eliminate the substances that are excreted with the urine. If fluid intake by mouth is impossible, subcutaneous infusion can be resorted to, but this treatment is only symptomatic because the dehydration cannot be counteracted as long as the toxic syndrome persists.

Treatment of Influenza with Amidopyrine.—Instead of the doses that are usually employed, Petrányi tried large doses. Nurslings of less than 3 months were given every two hours 0.05 Gm, those of from 3 to 6 months of age 0.1 Gm, those up to 1 year 0.15 Gm, and older children 0.2 Gm of amidopyrine until the fever subsided. This was usually the case after the third or fourth dose and undesirable complications did not develop. As soon as the temperature decreased to less than 37 C (98.6 F) and remained there for at least half a day, the intervals between the administrations were prolonged to three hours, then to four hours and after that the amidopyrine was given only three times a day, but when the fever returned, it was again administered more often. The amidopyrine was given in a 2 or 3 per cent solution with plenty of syrup. This method of treatment increases the daily dosage considerably compared to that which was formerly customary, since a nursing of 6 months receives at the beginning of the treatment 1.5 Gm daily. The author warns against a too rapid and too early decrease in the dosage. He also states that the best results are obtained if the treatment is begun early. The author states that these large doses of amidopyrine do not produce harmful effects, precaution being necessary only in weak and in tuberculous children. Other investigators have found that tuberculous fever yields more easily to amidopyrine than does the fever of other causes. Thus it can be understood that children who already react to smaller doses do not tolerate large doses so well. The author found that medication with large doses of amidopyrine had no harmful influence on the form elements of the blood or the hematopoietic system. The kidneys, renal pelvis and bladder were likewise free from impairments. But the author thinks that the parents of the children should be told that an acid disintegration product of amidopyrine colors the urine red. In the conclusion he points out that, with this method of treatment, nurslings and small children withstand an attack of influenza better because they lose less weight, the appetite improves, and fever and the other symptoms subside more rapidly. If the antipyretic action of amidopyrine fails, or the fever increases again after a temporary decrease, serious complications are liable to occur.

Osteochondritis Deformans Juvenilis Dorsi (Scheuermann's Disease).—Eckardt reports the case of a boy with a peculiar vertebral disorder. He relates the history and discusses the symptomatology of vertebral disorders that resemble the described case and from which it has to be differentiated, especially tuberculosis of the vertebral column. Scheuermann thought that, with the exception of its localization, this disorder is identical with Calve-Perthes disease, osteochondritis deformans juvenilis coxae. Both disorders develop during the period of growth and, while in osteochondritis coxae the disorder is localized in the epiphysis of the head of the femur, in Scheuermann's disease, that is, in the vertebral form, the process is localized in the growth line of the vertebrae, between the body and the epiphysis of the vertebrae. Schmorl maintains that the pathologic changes are found mainly on the marginal surfaces of the vertebral bodies and on the intervertebral disks, and that the changes on the epiphyses of the vertebral bodies are unessential. The author says that the case observed by him resembles most the disorder that Scheuermann designated as osteochondritis deformans juvenilis dorsi. The case has been under observation for eighteen months, and during this time the comparatively slight disturbances have not become exacerbated. The treatment consists of strengthening measures such as rest in the open air, cod liver oil, quartz lamp irradiation, prolonged bed rest and eventually the wearing of a support.

Archiv für klinische Chirurgie, Berlin

172 403 596 (Dec. 9) 1932 Partial Index

- Osteochondrosis Necroticans Findens of Sesamoid Bone of First Metatarsal. P. Kummelstiel, K. Kremser and H. Richter.—p. 403
Experimental Osteochondritis Dissecans. H. Tammann.—p. 450
*Endangitis Obliterans and Its Treatment. W. Rieder.—p. 458
Effect of Continued Cool Phosphorescent Light on Wound Healing. F. K. T. Schwarz.—p. 490
*Diffuse Peritonitis with Especial Consideration for Prevention of Postoperative Adhesions and Strangulation Ileus. K. O. Peters.—p. 503
Compression of Common Bile Duct by Enlarged Lymph Nodes. P. Valdoni.—p. 552
Case of Hepatobronchial Fistula. B. Rácz.—p. 591

Endangitis Obliterans and Its Treatment.—On the basis of thirty cases of spontaneous obliterating endangitis observed in the Hamburg University surgical clinic, Rieder

reviews the debatable points in the pathogenesis, etiology and treatment of the condition. Nine relatively early amputations performed for pain and not for gangrene offered an opportunity for the study of the early stages of the morbid process. Thrombosis of the vessels of the thigh was observed in only two of the cases. The histologic process appeared to involve veins and arteries to the same degree. It consisted chiefly of a proliferation of connective tissue having its origin principally in the intima of the blood vessel, though other layers contributed to it as well. This proliferation was the cause of obliteration of the lumen of the vessel. The histologic observations, therefore, did not support Buerger's teaching of an infectious thrombosis being the initial process. Examination of the etiologic factors failed to bring out any one specific factor. All the patients were young or middle aged. The racial factor seemed unimportant, there being only one Jew in the series. The Ehrmann-Meltzer biologic pupil reaction test was negative in twelve out of fourteen tested cases, suggesting that the blood of these patients did not contain vessel-constricting substances. Thus Oppel's theory of hypersupranalemia as the cause of arterial spasms leading to gangrene in young persons received no support and the author could not substantiate Oppel's theory of hyperglycemia as a cause of juvenile gangrene. The condition appears to be one of the peripheral blood vessels rather than of an inner central origin. Some special constitutional predisposing factor must be added to the well recognized factors of chilling, trauma, infection, nicotine and fatigue. The clinical course may be insidious and last as long as twenty years. The ultimate fate of these extremities depends on the development of sufficient collateral circulation and recanalization of the obliterated vessel. The author had excellent results with the operation of sectioning the ram communicantes, or with the operation of a periarterial sympathectomy combined with the resection of the sympathetic ganglions. The operation is indicated in cases of thromboangiitis with threatened gangrene. The author obtained excellent results in seven of nine cases in which operation was thus performed. The pain was abolished at once, gangrene did not develop, amputations were obviated, and the patients remained symptom free for a number of years. No such effect was obtained in two cases. Attention is called to the possibility of spontaneous healing. The author is enthusiastic about the effect of periarterial sympathectomy when combined with resection of ganglions. The operation is successful in properly selected cases. The success of the operation can be predicted with certainty if there ensues a temporary relief from pain, hyperemia or hyperthermia on the induction of anesthesia of the nerves supplying the extremity.

Treatment of Diffuse Peritonitis—Peters gives a report on 581 cases of acute peritonitis from the service of Prof. G. Lotheissen during the period from 1920 to 1930. Of the patients, 306 were operated on or have died as the result of postoperative peritonitis. As in other statistics, the appendix constituted the principal cause. The author discusses the various methods of treatment, with especial reference to mortality, the formation of postoperative adhesions and the incidence of postoperative ileus. Kirschner's statistics demonstrated that flushing the peritoneal cavity or mopping out the exudate gave approximately the same result in cases of diffuse peritonitis, a mortality of 47 and 46 per cent, respectively. The author objects to the method of pouring ether into the peritoneal cavity on the ground that in several instances it had led to shock and collapse and to more frequent formation of adhesions. The author failed to note any good effect in the cases reported from flushing with physiologic solution of sodium chloride, ether, camphor in oil or peptohydrochloric acid solution (Eiselsberg). The objections to flushing are that it leads to undue exposure, eventration, wetting and chilling of the patient, that the bacteria cannot all be washed out, whereas the infection can be carried to uninfected parts, and that the bactericidal exudate and fibrin are washed out. The author favors a small incision, rapid removal of the focus of infection and careful peritonealization of the stump. Cleansing of the peritoneal cavity is accomplished by gentle, limited, dry mopping. Especial care is used not to traumatize the serosa, for fear of opening up to infection less resistant subserous layers. The author drains only in those cases in which an abscess is anticipated or in which the suture is placed in

phlegmonous tissues. In the postoperative treatment, Fowler's position, abundant supply of water and dry or wet heat to the abdomen were employed. No definite effect was observed from the use of gas bacillus antitoxin (Williams). Lumbar anesthesia gave good results when the bowels refused to move after the usual means, such as enemas and solution of pituitary, had been tried, otherwise an ileostomy was performed. The author divides the cases of peritonitis of appendicular origin into three groups: (1) severe local peritonitis with a clear exudate in the rest of the cavity, (2) encapsulated abscess with a more or less general reaction, and (3) diffuse general peritonitis. The mortality was 5, 54 and 28.5 per cent, respectively. The relatively low mortality was ascribed to the conservative method of treatment. Of the patients operated on, 62.7 per cent were followed up. 70.3 per cent were found to be symptom free, 12.6 per cent gave a history of symptoms referable to adhesions, such as gassy colics, pressure and abdominal pain, while 5 per cent developed intestinal obstruction. Adhesions developed in 34 per cent after diffuse peritonitis, in 15.4 per cent after a circumscribed peritonitis and in 8.3 per cent after abscess formation. The author concludes that limitation of drainage to the infected area did not lead to a higher incidence of postoperative adhesions than that obtained with the active treatment.

Beitrage zur Klinik der Tuberculose, Berlin

81 543 638 (Nov. 23) 1932

- Bacteriologic and Histologic Research on Tubercle Bacillemia K. Brock.—p. 543
- *Demonstration of Tubercle Bacilli in Blood of Children J. Siegl.—p. 556
- Infectiousness of Tuberculosis R. Priesel.—p. 570
- Time of Occurrence of Immunity Manifestations in Experimental Tuberculosis E. Brudnicki.—p. 579
- Alteration Treatment of Pulmonary Tuberculosis F. Mattausch.—p. 591
- Paradox Fluctuations of Pressure Gage in Artificial Pneumothorax. E. Schill.—p. 595
- *Can Phrenic Exeresis be Recommended as Method of Choice in Unilateral Cavernous Processes? G. E. Patronikola.—p. 600
- Thoracoscopic Observations in Selective Pneumothorax Gudehus.—p. 613
- Exudative Pleurisy of Opposite Side Following Phrenic Exeresis H. E. Symens.—p. 616
- Sound Pitch Comparing Percussion Auscultation in Pulmonary Diagnosis E. Weidinger.—p. 621
- Significance of Irradiated and Nonirradiated Lecithin in Pulmonary Tuberculosis H. Siems.—p. 625
- Cultural Tests on Bactericidal Power of Floor Waves R. Brinkmann.—p. 630
- Cold Quartz Lamp for Irradiation of Larynx H. Kraus.—p. 635

Tubercle Bacilli in Blood of Children—Siegl reports the results of parallel tests, on 140 children, that were performed in Löwenstein's laboratory and in the laboratory of Maresch. Some of the children had active tuberculosis, others had inactive tuberculosis, and the rest were free from demonstrable tuberculosis. The laboratory of Löwenstein reported positive results in 13.5 per cent of the children with active tuberculosis, 18.9 per cent of those with inactive tuberculosis, and 23.9 per cent of those with negative tuberculin test. In the two last mentioned groups there were many children with rheumatic disorders. In the laboratory of Maresch, tubercle bacilli were found only in the blood specimens of those children who had active tuberculosis, and even in this group the proportion of positive results was smaller than that reported by Löwenstein, as it was only 5.1 per cent. The Maresch laboratory never detected tubercle bacilli in the blood of children who had inactive tuberculosis or were entirely free from it. The animal test gave positive results only in one case, in a child with exudative pleurisy. The results of the tests on secretions and excretions of children with active tuberculosis showed about the same percentage of positive results, but the results of the various tests did not always correspond. In ten tuberculin negative children in whom Löwenstein's laboratory detected tubercle bacilli in the blood, the tuberculin test was repeated after the rheumatic symptoms had disappeared and, with the exception of one child who had been exposed to a tuberculous infection, all tests were again negative. Of eleven positive blood cultures in continuously tuberculin negative children, six could be tested in animal experiments and proved to be true tubercle bacilli. The occurrence of virulent tubercle bacilli in persons who are always tuberculin negative has not been explained as yet and, before this is attempted, it will be necessary to answer the question as to why the demonstration of tubercle bacilli in the blood

of tuberculin negative persons was possible so far only in Löwenstein's laboratory, while other laboratories, although they master the technic, have been able to detect tubercle bacilli only in the blood of patients with active tuberculosis

Phrenic Exeresis—Patronikola emphasizes that phrenic exeresis should not be overvalued. He thinks that the authors who recommend phrenic exeresis as an independent therapeutic intervention are misled by the improvement that sets in shortly after the operation. However, this improvement is generally only temporary, and the permanent results of phrenic exeresis are not favorable. Moreover, complications such as gastric disorders and milary tuberculosis may result in some instances. In answer to the question as to whether phrenic exeresis is to be recommended as an independent therapeutic measure, the author states that a material of 111 cases, which he studied for late results, revealed only 4 per cent of cures and 4 per cent of improvements. Consequently he does not recommend phrenic exeresis as an independent measure, as he thinks that approximately the same percentage may be accounted for by spontaneous recovery. Yet he points out that other measures likewise have sometimes only a temporary effect and that even temporary improvements are of some value. At any rate, phrenic exeresis should be tried as a palliative measure if several attempts to induce a pneumothorax have failed and the patient does not wish to undergo another surgical intervention. Phrenic exeresis is helpful as a palliative measure if adhesions exist between pleura and pericardium, but its effect is doubtful in pulmonary abscesses, bronchiectasis and pulmonary gangrene. Phrenic exeresis can also serve as an auxiliary operation, particularly in extrapleural thoracoplasty and in plugging of the lung. As a supplementary operation it is valuable particularly in empyemic cavities, and sometimes also in pneumothorax treatment. Phrenicotomy and not phrenic exeresis is justified in patients with a cavity near the hilus, as a measure to prevent serious hemorrhages.

Deutsche medizinische Wochenschrift, Leipzig

58 1869 1908 (Nov 25) 1932

- *Hypochloremic Uremia. F. Hoff—p 1869
Catechins—Substances that Counterregulate Hormonal Action. F. Blum—p 1874
- *Disorders Leading to Extracyclic Hemorrhages. Their Incidence in Different Decades of Woman's Life. K. Tietze—p 1876
New Therapy of Rheumatism. Mobilization of Stiffened Joints. A. J. Burkhardt—p 1878
Endocarditis Lenta During Childhood. E. Nedelmann—p 1880

Hypochloremic Uremia.—Hoff shows that the decrease in the blood chlorides and the increase in the alkali reserve which develop during normal acid secretion of the stomach are most pronounced in those cases in which frequent vomiting prevents a reabsorption of the chlorides secreted by the stomach. As a result of this uremic disturbances may develop because, during these severe changes in the mineral content of the blood, especially in pronounced hypochloremia the kidneys do not function properly and because there is an increased protein disintegration in the changed ionic milieu. In a man, aged 49, who had pyloric stenosis with frequent attacks of vomiting, coma developed following gastric irrigation. The sodium chloride content of the urine was almost zero, the chlorine content of the serum (normal 370) was reduced to 173.5 mg per hundred cubic centimeters, the alkali reserve was increased to 109 and the rest nitrogen was 122 mg per hundred cubic centimeters. Administration of sodium chloride increased the chlorine content of the serum to 274 mg per hundred cubic centimeters, and a gastro-enterostomy produced a slight temporary improvement but in spite of this the patient died in a coma. Examination of the kidneys at necropsy revealed only slight degenerative changes that could not be considered as the cause of the fatal outcome. In a case of mercury poisoning with severe vomiting, a combination of organic renal insufficiency and of hypochloremia was observed. The author describes several other cases of slight hypochloremia without uremia, some of which were complicated by gastric tetany. In his conclusion he emphasizes that the problem of a hypochloremic pathogenesis should always be investigated in uremic conditions since in these cases administration of large quantities of sodium chloride may save the life of the patient while in organic renal insufficiency sodium chloride administration is contraindicated. In cases of prolonged vomiting gastric irriga-

tion should never be done without control tests of the chlorine content of the blood.

Extracyclic Hemorrhages—Tietze classifies the disturbances causing extracyclic hemorrhages into two groups: (1) those caused by conditions connected with gestation, such as incomplete abortion, extra-uterine gravidity or endometritis after abortion and (2) those caused by malignant tumors, especially by carcinoma of the cervix uteri. The first group predominates before the menopause, the second group after the menopause.

58: 1949 1986 (Dec 9) 1932

- *Significance of Latent Infection for Development of Epidemics. U. Friedemann—p 1949
- *Pathogenesis of Nursling Intoxication. S. Rosenbaum—p 1952
Intracutaneous Test in Allergic Patients. A. Evers—p 1954
- *Gastrocardiac Manifestations as Results and Permanent Conditions Following Phrenic Exeresis on Left Side. H. Jahnke—p 1957
Modification of Healing of Fractures by Viosterol. D. Hachenburg—p 1959
Nicotine and Suprarenals. M. Staemmler—p 1960
Acute Coronary Thrombosis. E. Zadek—p 1961
Technic of Blood Transfusions. G. Lomnitz—p 1962
Solution of Secondary Butylbromphenylbarbituric Acid in Deprivation. Cure of Drug Addicts. O. L. Weiss—p 1963
Local Treatment of Tonsillitis. F. Schierenberg—p 1963

Latent Infection and Epidemics—Friedemann calls attention to certain erroneous conceptions in the relation between latent infection, immunity and the development of epidemics. Why protect people against infection, if latent infection is so important for the immunity conditions in a population? The overcrowding of public transportation facilities ought to provide an ideal method to confer immunity on the people. The author emphasizes that this manner of reasoning disregards two important factors: (1) that immunization by means of natural infection is a double-edged sword, because one can never know whether the infection will remain latent or become manifest as disease, (2) that the course of an infection, besides being dependent on the susceptibility of the person, is also influenced by the quantity and virulence of the pathogenic agent. The author further points out that the beginning and cessation of epidemics constitute one of the most difficult problems in epidemiology. He cites observations and experiments from which he draws the conclusion that latent infection does not prevent the development of epidemics but even causes them, when persons without latent infection come into contact with persons with latent infections. Levinthal's theory of the origin of the influenza epidemic during the World War is cited in this connection. Levinthal assumes that it was caused by the importation of colonial soldiers who had no immunity against the pathogenic organisms of European influenza. In these troops the virulence of the organisms increased to such a degree that the immunity of the European population was not sufficient to protect against the outbreak of the infection and thus the terrible epidemic resulted.

Pathogenesis of Nursling Intoxication.—According to Rosenbaum the intoxication of nurslings usually begins with diarrhea, and then symptoms of the central nervous system develop in rapid succession. Delirious unrest is followed by coma, cataleptic rigidity, and twitching spasms, and high fever alternates with subnormal temperatures. Circulatory disturbances may develop and the respiration shows the peculiar, temporarily accelerated and then again retarded but always deep thoracic form that greatly resembles Kussmaul's great respiration. Everything seems to indicate some form of poisoning. Until recent years little was known about the pathogenesis, but recent studies have aimed to solve the following problems: the significance of the diarrhea, the nature of the toxin and the point of attack of the toxin. The diarrhea is significant in that it produces an exsiccosis, for there are cases of intoxication of nurslings which develop without preceding diarrhea but these usually begin with frequent vomiting, which likewise results in exsiccosis. Some authors assume an exsiccation of the portal region by protein as the most important factor in the pathogenesis of intoxication, but the author was able to show that there is no dehydration in the region of the liver. He further shows that the so-called protein fever is not identical with toxicosis of nurslings, but he does not deny that the pathogenic processes of protein fever and of toxicosis are related. The author discusses the nature of the causal toxin and reaches the conclusion that endotoxins of the coli

strains and perhaps also of related dysentery strains play a part in the pathogenesis. In regard to the point of attack of the toxin he states that a poisoning of the center of respiration seems probable, and he thinks that the entire central nervous system is involved. The treatment of the toxicosis should aim to overcome the exsiccosis, but administration of oxygen has also been found helpful.

Gastrocardiac Manifestations After Phrenic Exeresis—Induced by reports that phrenic exeresis is often followed by topographic, physical, pathophysiologic, pathologic-anatomic and functional changes in the heart apparatus, the gastrointestinal tract and the respiratory tract, Jahnke examined 232 patients who had undergone phrenic exeresis. He observed topographic displacements of organs, but these never led to severe gastric or cardiac disturbances. Many patients had complaints during the first few weeks after the intervention, but these gradually disappeared, and only in rare instances did the symptoms recur later, and were then, as a rule, only temporary. The author thinks that the somewhat more frequent dyspnea and cardiac manifestations are probably due partly to the reduced respiratory surface in destructive pulmonary processes, partly to the contraction of the thorax, and partly to changes in the lesser circulation, yet in view of the topographic and sometimes extreme organic changes, it is surprising how slight the manifestations are, as long as the cardiac muscle and the vascular system are healthy. The cardiovascular system adjusts itself to the changed condition in most instances. A slight circulatory insufficiency may persist in adipose types. Serious gastrocardiac conditions were never noted and the author concludes that hesitation in the employment of phrenic exeresis on this account is unfounded. At any rate the permanent or late impairments are so rare that they may be disregarded in the selection of the cases for phrenic exeresis.

Jahrbuch für Kinderheilkunde, Berlin

137 257 380 (Dec) 1932

- *Glycogen Disease Hepatogenic Infantism E Unshelm—p 257
- Clinic and Pathogenesis of Cachectic Aphthae—Sublingual Fibroma (Riga Fede's Disease) M Kasahara and K Nagatani—p 303
- Respiratory Calorimeter for Nurslings H Schadow—p 318
- Significance of Thyroid in Pathogenesis of Rickets (Experimental Investigations) F Thoenes—p 329
- *Sinus Thromboses Following Alimentary Intoxication K Wüst—p 340
- Role of Hemato-Encephalic Barrier in Genesis of Neurotoxic Syndrome in Acute Nutritional Disturbances S J Schaferstein—p 346
- Treatment of Mastoiditis R Leidler—p 350

Glycogen Disease—Unshelm gives a detailed description of the clinical histories of two children (brothers) who had a congenital disturbance of the carbohydrate metabolism. The diagnosis was at first difficult, but then the author found that von Gierke had described cases with this symptomatology and had designated the disease as hepatonephromegalia glycogenica. The most noticeable symptom is an abdominal distention that is either congenital or develops during the early months of life. The cause of the large abdomen is an enormously enlarged liver, which is firm and smooth and has a high glycogen content. In the cases described by von Gierke the kidneys were likewise enlarged and rich in glycogen. At birth the children are usually of normal size, but the later development shows a considerable retardation. The bony structure is usually abnormally fine and, in one of the cases described, the thin legs are in great contrast to the other parts of the body, in which the subcutaneous fat layer is well developed. The hairy covering of the body shows abnormalities, either a falling of the hair or, as in the cases observed by the author, a persistence of lanugo. The abnormalities of the blood consist of a hemorrhagic tendency and a hypochromic or hyperchromic anemia, in one of the children there was poikilocytosis and anisocytosis. The leukocyte numbers are more or less normal, but the lymphocytes are relatively increased. Constipation is reported in the author's cases, but in one of them thin stools were occasionally noticed. The urine may be free from pathologic constituents but, in one of the children, acetone was found in the morning urine and, after eating, the urine contained sugar. Von Gierke observed an enormous increase in the glycogen content of the blood. Whether the increase in inorganic phosphorus is due to the disturbance in the sugar metabolism or to a rachitic disturbance cannot be definitely decided. In regard to the diastase, the author states that the increased elimination in the urine is of little differential diagnostic value, because the tests

were made at the end of the winter, but he considers the irregularity in the diastase elimination and the high diastase content of the blood a peculiarity of the glycogen disease. He further shows that the glycogen disease has to be differentiated from a number of disturbances in which an enlargement of the liver exists, particularly from hypertrophic cirrhosis, because not a single symptom of glycogen disease is so characteristic that a definite diagnosis can be based on it.

Sinus Thrombosis Following Intoxication—In the necropsies of two cases of alimentary intoxication of noninfectious origin, Wüst found sinus thromboses in the sagittal sinus, sigmoid sinus, longitudinal sinus and the sinuses of the base of the brain, while other veins were free from thromboses. This gives rise to the question why the cerebral sinuses are the sites of predilection. The author thinks that fluctuations in the pressure of the cerebral fluid, which in turn influence the sinuses, are probably significant, and that the resulting change in the current velocity of the blood may give an explanation for the localization of the thromboses.

Klinische Wochenschrift, Berlin

11 2057 2096 (Dec 10) 1932 Partial Index

- Transport Problems in Animal Organism H Bennhold—p 2057
- Mass Production of Variola Virus for Smallpox Vaccination in Tissue Culture K Herzberg—p 2064
- *To-What Extent do Basal Metabolism and Perspiratio Insensibilis Correspond? A Jores—p 2065
- Physiology of Respiration in Pregnancy C Schroeder—p 2067
- *Relation of Suprarenal Cortex to Myasthenia Gravis Pseudoparalytica H Bernhardt and S L Simpson—p 2069
- Measurement of Intracranial Pressure M Baumann—p 2071
- Investigations on Melanophore Hormone I F G Dietel—p 2075

Basal Metabolism and Perspiratio Insensibilis—Jores gives a tabular report of 105 cases, in which he compares the results of the basal metabolism test with those of the determination of the perspiratio insensibilis. He shows why several other investigators of this problem obtained results that differed so widely from those forecast by Benedict-Root. In regard to the question as to whether the measurement of the perspiratio insensibilis could serve as a metabolism test, he states that the gas metabolism test is a reliable method, so that its replacement by a new method would be justified only because of greater exactness or a simpler method. These two requirements are not fulfilled in the measurement of perspiratio insensibilis, because its results are the same as those of the gas metabolism test in normal persons and are less exact in metabolic disorders, and the technic is not simpler. The author thinks that the determination of the perspiratio insensibilis, at the most, can be a substitute for the gas metabolism test in cases in which the latter cannot be employed on account of resistance on the part of the patient, for the determination of the perspiratio insensibilis does not exert the patient.

Suprarenal Cortex and Myasthenia Gravis Pseudoparalytica—Bernhardt and Simpson state that, in the treatment of six patients with Addison's disease, they obtained the same good results with the new hormonal extract of the suprarenals as were first reported by American authors. They point out that, because the suprarenals are of great significance in the endocrine and sympathetic processes of the organism, the new suprarenal extract has been tried also in various other disorders. A favorable action of the extract has been observed in hyperthyroidism, postdiphtheric asthenia, hyperemesis gravidarum and conditions of fatigue and weakness. The efficacy of the extract in counteracting fatigue was an inducement to try it in myasthenia gravis pseudoparalytica, the pathogenesis of which remains still unexplained, although many assume endocrinal disturbances, particularly of two glands, the thymus and the suprarenals. In two patients with severe myasthenia, the suprarenal extract was tried but proved ineffective, and therefore it seems improbable that the suprarenals play a part in the pathogenesis. It was observed that the cholesterol content of the blood was considerably affected by the hormone, whereas the blood pressure and the sugar and calcium content remained unchanged. Attempts to influence myasthenia gravis pseudoparalytica with subcutaneous injection of small doses of epinephrine and pilocarpine, a treatment that had been recommended for muscular dystrophy, failed likewise, but one of the two case reports shows that irradiation of the region of the thymus was followed by considerable improvement.

Medizinische Klinik, Berlin

28 1697 1730 (Dec. 2) 1932

- Disorders of Red Blood Picture. W. Stockinger—p 1697
 Differential Diagnosis of Acute Appendicitis. M. Borchardt—p 1701
 Withdrawal of Gastric Juice in Ulcer and in Hyperacidity. H. Strauss—p 1703
 *Significance of Hippus in Diagnosis of Multiple Sclerosis. F. Herzog—p 1705
 Progress and Errors in Ovarian Hormone Therapy. O. O. Fellner—p 1706
 Perforation of Ventricular Ulcer Following Roentgenoscopy with Contrast Medium. H. May and W. Proesser—p 1708
 Vaccine Therapy of Whooping Cough. R. Steindler—p 1709
 Intravenous Continuous Drop Infusion in Internal Medicine. J. Teisinger—p 1710
 Intracutaneous Test with Iodine in Hyperthyroidism. Helene Schur—p 1711
 Isolated Reflex in Spastic Conditions. H. Bix—p 1711
 Idem. H. Gerhartz—p 1712
 Variability of Dysentery Bacilli in Light of Modern Research. F. Hoder—p 1713

Hippus in Multiple Sclerosis.—Twenty years of observations convinced Herzog that hippus, spasmodic alteration of the size of the pupil, is a frequent symptom of multiple sclerosis. It has diagnostic value because it is observable in the incipient stages in which there is usually a deficiency of symptoms, and it is frequently the only cerebral symptom. However, the tremor is sometimes intermittent, that is, it may be absent for several seconds, and the author thinks that this is the reason some other investigators have overlooked the symptom in patients with multiple sclerosis, because one glance at the size and shape of the pupils may not reveal this form of hippus. He admits that spasmodic alteration of the size of the pupil occurs also in a number of other disorders, but his version of the mechanism of the development of hippus makes it appear likely that in multiple sclerosis it occurs more often than in any other disorder.

Monatsschrift f. Geburtshilfe u. Gynakologie, Berlin

93 1136 (Dec.) 1932 Partial Index

- Conservative Therapy of Perforation of Uterus in Artificial Abortion. T. Syrowatko—p 29
 Modification of Glycogen Content of Blood by Gestation and by Menstrual Cycle. H. Eufinger—p 51
 *Significance of Different Forms of Calcium and Their Modification by Parathyroid Extract. R. Spiegler—p 60
 Morphologic and Functional Relations Between Fetal Elements and Walls of Uterine Tubes During Gravidity. A. Terechowa—p 66
 *Amenorrheal Syndrome. G. H. Schneider—p 83

Significance of Different Forms of Calcium.—Spiegler states that calcium occurs in the blood in three forms, as ionized calcium, in salt form and as a colloidal protein compound. It is of great importance for the calcium metabolism whether the one or the other form predominates, and it is evident that research on calcium metabolism could make little progress until, in addition to the total calcium content, the various forms in which calcium occurs were given consideration. The author reports a case of tetany in which, under the influence of treatment with parathyroid extract, interesting changes were noted in the proportions of the various forms of calcium. Colloidal calcium was not demonstrable before the treatment was begun, but after administration of parathyroid extract the colloidal calcium amounted to 27 per cent of the total and the calcium in salt form had increased whereas the ultrafiltrable calcium had decreased to less than half of its former percentage. The total calcium content was somewhat increased but was still subnormal. These observations indicate that the calcium content of the blood is not as stable as had been assumed as long as only the total content had been considered, but that it is extraordinarily labile because tests revealed that the administration of parathyroid extract may produce a complete reversion in the percentage of the different forms of calcium within the short period of only two hours. It is the possibility of such sudden changes is taken into consideration it seems no longer surprising that for instance, eclampsia suddenly develops without preceding clinical symptoms.

Amenorrheal Syndromes.—According to Schneider, amenorrheal syndromes are of uterine ovarian or hypophyseal origin. He thinks that it can no longer be doubted that the central regulation of ovulation is located in the hypophysis, particularly its anterior lobe, and in the related centers in the central gray matter on the floor of the third ventricle. The motor impulses of a primary hypophyseal cycle produce a

secondary ovarian cycle and this, in turn, causes the cyclic changes in the uterine mucous membrane. Unless it is possible to find an isolated cause, the therapy of amenorrhea should influence both the hypophysis and the ovaries. A substituting organ therapy combined with roentgen treatment gives good results.

Munchener medizinische Wochenschrift, Munich

79 2027 2066 (Dec. 16) 1932

- Psychiatry. J. Lange—p 2027
 Diabetes During Childhood. W. Dörmann—p 2029
 *Initial Symptoms of Acute Articular Rheumatism and Their Pathogenic Significance. G. Singer—p 2034
 Is Helmholtz's Explanation of Accommodation Process Still Tenable? A. von Pfugk—p 2036
 Later Fate of Patients Who Have Had Eclampsia or Pregnancy Kidney. W. Schultz—p 2038
 Mental Disturbance Caused by Poisoning with Derivatives of Benzene or Toluene (So-Called Anilism). A. A. Friedländer—p 2040
 *Health Impairment by Slight Noises. Pinoff—p 2041
 Serum Therapy in Peritonitis. E. Balogh—p 2042
 Psychotherapy in Children. E. Stern—p 2043
 Radium Therapy in Rheumatic Conditions in Insurance Practice. H. Weinberg—p 2046

Acute Articular Rheumatism.—Singer calls attention to the significance of infections of the pharyngeal organs, which are considered as the most frequent port of entry of acute infectious arthritis. He points out that the causal significance of infections of the tonsils, particularly of streptococcal tonsillitis, had been recognized by some investigators several decades ago. Later it was assumed that other infections, such as those of the accessory sinuses, or certain forms of otitis or alveolar pyorrhea may also have a pathogenic significance. Although the beginning with acute infections is the most frequent, there are also cases in which the articular manifestations are preceded by a feverish systemic disorder. After discussing the opinions of different investigators on fever in rheumatic conditions, the author directs attention to the nervous and dermatologic (erythema multiforme) symptoms that frequently develop during the initial stage of articular disturbances, but he considers the cardiac manifestations as the most important sign of the infectious character of acute rheumatism. He emphasizes that *Streptococcus viridans*, which was considered as the specific organism of endocarditis, is also the cause of the rheumatic infection, and he is convinced that the cardiac manifestations are the most significant ones in the course of the rheumatic infection and that in some instances they may be the first manifestation of the rheumatic process. The nodules first described by Aschoff are products of tissue transformation which may be produced by different tissue impairing influences. Although streptococci have been detected in such nodules, these are now generally considered as the sign of a changed reaction (allergy), but those authors who adhere to the allergic theory have to accept bacterial proteins as the causal factor, and nearly all again fall back on the streptococci. In his conclusion the author emphasizes once more that the infectious agent enters the blood stream and thus causes the clinical manifestations, particularly on the most important circulatory organ, the heart.

Health Impairment by Slight Noises.—Pinoff shows that no matter whether a steady noise fatigues the acoustic nerve so strongly and persistently that the noise is no longer heard, or whether it is suppressed in consciousness because it disturbs, it is detrimental to the health. In the first case, the fatigue of the nerve implies a fatigue of the entire nervous system, which impairs working capacity in that one has to expend energy in order to overcome it. In the second case, an effort has to be made to eliminate it from one's consciousness. The author thinks that in many instances nervousness may be due to the influence of noises, for even slight noises are injurious if they persist.

Wiener klinische Wochenschrift, Vienna

45 1497 1528 (Dec. 2) 1932 Partial Index

- Accidents Caused by Electricity. S. Jellinek—p 1497
 Body Feeling and Body Consciousness. H. Hoff—p 1501
 *Static Lumbago. A. Saxl—p 1504
 Treatment of Pneumonia with Artificial Pneumothorax. S. Perlroth and M. Topercer—p 1508
 Obliteration of Veins in Phleboc Ulcer. O. Meyer—p 1511
 *Treatment of Menstrual Disturbances. J. Novak—p 1512

Static Lumbago.—Saxl points out that the burdening of the vertebral column becomes manifest primarily in the lowest of the movable vertebrae, that is, in the fifth lumbar vertebra.

The articular connection of this vertebra with the sacrum, owing to the obliquely inclined position toward the front and downward of the fifth lumbar vertebra, is taxed most heavily. A disparity between work requirements and functional capacity may therefore readily lead to impairments. The reduction in the functional capacity, characterized by fatigue and by static lumbago, may be relative or absolute. It is relative if the requirements of the lumbosacral portion of the vertebral column, in regard to burdening as well as in regard to movement, are extraordinarily great, it is absolute if congenital or acquired defects of the lumbosacral joint impair its normal functional capacity. Static lumbago is due to overextension, loosening and straining in the connection of the fifth lumbar vertebra with the sacrum, and, if the functional requirements are great, these conditions may acquire an inflammatory character, particularly if, as the result of bone defects, the position of the fifth lumbar vertebra has been changed. Simple static lumbago may occasionally cause pains that spread to the flanks, also sensitivity in the lumbosacral articulation and articular pain during maximal bending, but movements toward the side do not cause pain. The erector spinae does not show fixation or pressure sensitivity in this mild form of static lumbago. In severe cases, particularly those leading to arthritis, the mobility is impaired, the region of the joint is sensitive to pressure, and the erector spinae shows spastic fixation. The treatment of static lumbago should aim at an improvement in the functional capacity of the joint by mechanical measures, but a weak joint should be given support by suitable appliances. In rare cases an operative intervention may be required. Physical therapy is advisable in cases in which inflammation causes an exacerbation of the static lumbago.

Treatment of Menstrual Disturbances—Novak discusses the treatment of amenorrhea. He points out that the physical measures that are frequently employed, such as diathermy, hot foot or sitz baths, moor or mud packs, mustard baths and poultices, all have the object to produce genital hyperemia. Change in the milieu, particularly sojourn at altitudes between 700 and 1,100 meters, is also helpful in some cases of amenorrhea. In discussing emmenagogues the author mentions iron, arsenic and particularly potassium permanganate, but also certain vegetable products. The treatment with sex hormones, particularly folliculin, should aim at imitating the normal cyclic change in the hormonal content of the blood, that is, because the hormone content of the blood increases steadily from the time of menstruation until it reaches the maximum shortly before the next menstruation, the dosage of the hormonal preparations should be gradually increased and then discontinued several days before menstruation. During the third and fourth week, administration of a standardized corpus luteum preparation should be combined with the folliculin medication, but this should likewise be discontinued a few days before menstruation. The hypophyseal hormone preparations have not come up to expectation, but it sometimes proves helpful to combine roentgen irradiation of the hypophysis with the administration of sex hormones. The abnormally profuse or the too frequent menstrual hemorrhages usually yield more readily to treatment than does amenorrhea. It is generally possible to check the hemorrhage by preparations producing contraction of the vascular or uterine musculature. Corpus luteum preparations are helpful in cases of menorrhagia due to small cystic degeneration of the ovaries. A preparation of the posterior hypophysis and autohemotherapy have also proved effective in some disorders of menstruation. An operative intervention becomes rarely necessary, and before resorting to it roentgen treatment may be tried. Occasionally an irradiation of the liver or spleen checks or at least reduces the hemorrhage and, if this is not the case, ovarian irradiation can be attempted, but this requires precaution because it involves great dangers. The author further discusses the treatment of the menstrual pain, particularly the form designated menstrual colic by him. He believes that it is due to a spastic contraction of the smooth muscles of the internal genitalia. It was produced first by a severe shock, and the fear of the return of the pain produces it again and again. This pain can be overcome in many instances by a psychoanalytic method, namely, discovering the psychic trauma that caused the first attack and explaining the pathogenesis to the patient. The great number of antispasmodic medicaments that have been recommended indicates that not

one of them is entirely reliable. Treatments based on the supposition that the menstrual pain is due to mechanical obstruction of the discharge are rarely effective.

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- Some Peculiarities and Treatment of Early Syphilitic Disorders of Central Nervous System O Kauders—p 1553
 *Use of Blood Transfusion in Dermatology G Scherber—p 1557
 *Roffo's Cancer Reaction Statistics on Eleven Thousand Cases A Gandolfo—p 1560
 Stenosis of Sigmoid Flexure on Gonorrheal Basis D M Tichomirov—p 1563
 Medicinal Therapy of Nervous Diseases A Fröhlich—p 1564
 Indications of Unfavorable Prognosis of Scoliosis O Stracker—p 1568

Blood Transfusion in Dermatology—Scherber relates his experiences with blood transfusion in cases of severe burns and agranulocytosis. He reports the effects of blood transfusion in impetigo herpetiformis, in which it proved life saving. In pemphigus vulgaris it was valuable as an adjuvant. Blood transfusion failed in two cases of the mildest form of pemphigus vulgaris, in dermatitis multiformis, in which the improvement was only temporary, and in a case of pemphigus acutus malignus. Blood transfusion effected a remission in a case of relapsing aphthous stomatitis, but there was a new relapse after several weeks. The author recommends blood transfusion in the severe forms of acute and chronic purpura, particularly in purpura hemorrhagica, and he states that severe cases of erythema multiforme can be effectively treated by combining acetarsone treatment with blood transfusion. Exceptionally favorable results can be obtained by blood transfusion in severe forms of metal poisoning, such as in dermatitis arsenicalis after arsphenamine medication and in gold dermatitis, while the milder forms of these disturbances generally yield to baths, sulphur ointments and sodium thiosulphate. Because favorable results were obtained with blood transfusion in septic erysipelas, in sepsis following furunculosis and in sepsis during severe gangrene of the mouth, the author recommends it for such cases and also for cases of gonococcal sepsis. In the conclusion he discusses the action mechanism of blood transfusion.

Roffo's Cancer Reaction—Gandolfo states that the reaction was discovered by Roffo in 1925, in the course of experiments with the serums of normal and tumor-bearing rats. Subsequently the test was studied by a number of other investigators. With few exceptions, all of them corroborated Roffo's observations. Following a review of the literature, the author gives a statistical report of the results of Roffo's cancer reaction in 11,000 cases, in 4,282 cancer patients and in 6,718 patients with other diseases. On the basis of these, he concludes that a negative Roffo reaction does not definitely exclude the presence of a tumor but, in case of a positive reaction, the search for a neoplasm should be continued, because the proportion of erroneous positive results is slight (6.37 per cent). The highest percentage of positive reactions is obtained in cancers of the internal organs, and this makes the reaction the more valuable since the clinical diagnosis of these cases is especially difficult. The author thinks that the value of the reaction as a diagnostic aid, and the simplicity of its technic, recommend it for use in the clinic.

45 1577 1600 (Dec 23) 1932

- Knowledge of Function of Liver and Its Significance in Clinic R Bauer—p 1577
 Success and Failure of Blood Transfusion in General Sepsis O Hoche—p 1581
 *Acute Urticarious Toxic Exanthem with Necrosis in Gravidia with Eclampsia M Scharman—p 1584
 Role of Constitution in Development of Late Syphilitic Changes, Especially in Aortitis L Lazarovits—p 1585
 *Treatment of Suppurative Wounds with Hypertonic Solutions of Magnesium Sulphate and Sodium Sulphate B E Pankratiev and W W Politow—p 1589
 Galvanic Reflex Phenomenon O Albrecht—p 1591
 Research on Twins in Psychiatry H Hartmann—p 1592
 Diagnosis of Gonorrhea by Means of Cutaneous Vaccination J Neuer and I Ornstein—p 1592
 Diagnosis of Intestinal Dyspepsia E Lauda—p 1592

Acute Urticarious Toxic Exanthem with Necrosis—Scharman reports that a gravida with eclampsia developed an acute urticarious toxic exanthem three days before delivery. The itching was slight, there were no gastro-intestinal disturbances, and an exogenous cause could not be detected. Following an attack of eclampsia, the exanthem became exacerbated. It disappeared immediately after delivery but left scars of the size of the hemorrhages. An examination of the blood before

delivery revealed a considerable increase in the rest nitrogen (56.38 mg per hundred cubic centimeters), but forty-eight hours after delivery the rest nitrogen had decreased to 36.12 mg per hundred cubic centimeters.

Treatment of Suppurative Wounds with Hypertonic Solutions—Pankratiew and Poltow obtained good results with 25 per cent aqueous solutions of magnesium sulphate and sodium sulphate in the treatment of abscesses, phlegmons, mastitis and large carbuncles in which a wide opening by incision and, eventually, the introduction of a tampon is necessary. In furuncles and in small carbuncles, instead of making an incision, they lift off the ripe top with small pincers and then use the hypertonic solutions. Suppurating wounds resulting from injuries, frozen limbs and burns can likewise be treated with the solutions. In all cases in which this treatment is employed, the pains disappear rapidly, the temperature becomes normal, and the time required for healing is considerably shortened. Magnesium sulphate gives somewhat better results than sodium sulphate in that it counteracts the pain more successfully. Wide application of the treatment with these hypertonic solutions is justified not only because the method gives good results but also because it is simple and inexpensive.

Zeitschrift für Immunitätsforschung, Jena

77 167 364 (Dec. 15) 1932

- Preparation Qualities and Action of Concentrated Toxoid C Siebenmann.—p 167
Changes in Specificity of Immune Serums After Chemical Treatment. F Breinl and F Haurowitz.—p 176
Complement Inactivation by Bothrops Venom. O Bier.—p 187
*New Methods of Flocculation and Conglobation Reaction for Detection of Syphilis. J Kiss.—p 195
Hemolysis of *Bacillus Influenzae* Pfeiffer. I L Kritschewski and M L Kapusto.—p 242
Studies on Wassermann Extracts by Measuring Turbidity. J Adamski.—p 247
Influence of Certain Metabolic Products on Experimental Tuberculosis of Guinea Pigs. P Rondoni.—p 264
Flocculation Time During Immunization of Diphtheria Serum Horses. A J van den Hoven van Genderen and C A Kramers.—p 280
*Practical Value of New Modification of Citochol Reaction. L S Schirwindt.—p 294
Dependence of Precipitinogenic Property of Anthrax Bacillus on Its Virulence. K Iyanoff and E Stoulova.—p 304
Infectious Bulbar Paralysis (Morbus Aujeszky). M Nikolic.—p 311
Natural Hemagglutinins of Snakes and Other Cold Blooded Animals. A do Amaral and D von Klobusitzky.—p 315
Variability of Bovine Tubercle Bacilli. R Vollum.—p 327
Specificity of Fibrins. H J Fuchs.—p 343
Comparative Investigations on Citochol Reaction with Extracts Prepared by Sachs Witebsky and with Those Prepared by Us. S L Schirwindt and A V Alexejeva.—p 353
Modification of Reaction Tsien Yung Tsau with Inactivated Serums for Serodiagnosis of Syphilis. S L Schirwindt and M B Fedorowa.—p 359

New Methods of Flocculation Reactions—Kiss rejects the widely accepted opinion that the chemical nature of the extracts used in syphilis reactions is of no importance. The untenability of this assumption becomes evident when proof is brought that chemically definable substances such as lecithin and cephalin can be used as antigens. It is the lecithin and cephalin of the heart extracts that undergo physical changes under the influence of syphilitic serums. Phosphatide solutions (lecithin plus cephalin) are the stock solutions for the preparation of antigens for the various flocculation and conglobation reactions. The addition of cholesterol increases the flocculation tendency of the antigen solution. However the reactions can be done also without cholesterol which shows that cholesterol is not an essential constituent of the specifically active antigens. Depending on the method of preparation one obtains from the phosphatide solution an antigen solution in which either the lecithin or the cephalin properties predominate. It is characteristic for lecithin that it reacts with serum only after previous heating, whereas cephalin reacts also with unheated serum. The specific susceptibility of the antigen solution is dependent on the degree of dispersion for a finely dispersed solution is not suitable for practical purposes. The author thinks that antigens of known chemical composition should be given the preference in serologic tests and that antigen solution should always be tested for its physical properties. The high alcohol content of the concentrated lipid suspensions is the cause of their lability and it has been found that alcohol-free suspensions are stable and can be preserved for several days. A flocculation reaction has the highest degree of intensity when a concentrated

antigen solution reacts with the serum in a small volume of mixture. The possibility of employing photometry in flocculation reactions is limited for the reason that photometric measurements are successful only in finely dispersed solutions. The author describes a new technic for a conglobation reaction, the cephalin conglobation. Unheated serum is mixed with a small amount of concentrated, entirely precipitated lipid suspension that is rich in cephalin. This mixture is strongly diluted with a 0.5 per cent solution of sodium chloride and, after heating to from 52 to 58 C, it is placed in a cool water-bath, in which the conglobation develops after twenty minutes. The conglobation reaction that is produced with a reagent rich in cholesterol and with an inactivated serum is a combination of flocculation and conglobation.

Modification of Citochol Reaction.—Schirwindt states that the new modification of the citochol reaction has the advantages that it employs a relatively less coarsely dispersed dilution of homogenic extract than does the old citochol reaction or the Kahn reaction, that the pipetting of the ingredients is easier and more exact, that the consumption of extract is more economical and that it has a high degree of sensitivity. From the theoretical aspect, the modification is interesting in that the dilution of the cholesterolized extract is done by two successive dilutions of the stock extract with a concentrated sodium chloride solution. The author advises against the use of a 0.9 per cent solution of sodium chloride for the dilution of the stock extracts, because it results in a high percentage of erroneous reactions. As the best means of dilution of extracts he recommends a 3 per cent solution. In order to test the practical value of the modification of the citochol reaction, the author made comparative tests with the old and new citochol reaction and also with the Wassermann and Kahn tests on 1,219 serums. On the basis of these tests, he reaches the conclusion that the new modification of the citochol reaction is a valuable supplement to the existing methods for the rapid serodiagnosis of syphilis. In sensitivity it surpasses the three methods with which it was compared. This was noted especially in latent syphilis and also in experimental syphilis of rabbits.

Zentralblatt für Gynäkologie, Leipzig

56 3057 3104 (Dec 17) 1932

- Formation of New Muscle Cells in Wall of Pregnant Human Uterus. B Fischer Wasels.—p 3061
Medicinal Evacuation in Fetal Abortion. R Schröder and C Clauberg.—p 3062
Course of Labor in Old Primiparas. E Puppel.—p 3067
Deflection of Head in Pelvic Presentation. A Köhler.—p 3075
Delivery in Cervical Cesarean Section. C Cronheim.—p 3080
Pelvic Bath. N Cukor.—p 3084
*Granulosa-Cell Tumors. E Fauvet.—p 3088
Etiology of Habitual Hydrops and Hydramnios. H Spang.—p 3101

Granulosa-Cell Tumors—Fauvet states that granulosa-cell tumors of the ovary have been known for the past forty years but that their histogenesis was clearly established only during the last decade through the teaching of Robert Meyer and his school. These tumors originate from the granulosa layer of the ovary. They have thus far been found to grow unilaterally and to possess a definite and rather thick capsule which as a rule, remains intact. Both metastases and recurrences are rare. The histologic picture is fairly typical. Clinical diagnosis of the character of the tumor is sometimes suggested by the appearance of certain functional symptoms. These tumors provoke an abnormal increase in the formation of the female sex hormone, with the resulting "feminization" of the patient. Hypertrophy and hyperplasia of the myometrium, the endometrium and occasionally of the breasts takes place. Endometrial hypertrophy rather commonly leads to uterine hemorrhages which constitute the most important clinical sign. In spite of sex stimulation these patients do not exhibit an effect of rejuvenation, to the contrary, they are sick persons. The relationship of the sex hormone to the secretion of the anterior lobe of the pituitary was established in one case. The possibility in the future of establishing the nature of the tumor by means of testing the presence of abnormal hormones in the blood is suggested. Among seventy-six cases of ovarian carcinoma observed in the Leipzig University clinic between the years 1928 and 1931 there were found eight cases of granulosa-cell tumors an incidence of 10 per cent. The prognosis is relatively good, even in the rather exceptional instances of metastases.

Jurnal Medichnogo Tsiklu, Kiev

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- Problem of Regulation of Functions of Organism O O Bogomolets —p 445
- Practical Deductions from Theoretical Data O O Bogomolets —p 459
- *Specificity of Hypoglycemic Hormone of Suprarenal Gland N B Medvedeva —p 479
- Determination of Oxygen Reduction Potentials by Study of Oxidative Processes of the Body P E Kravetskiy and N A Oyvin —p 481
- Effect of Hypophysectomy on Involution of Thymus S Kapran —p 501
- Biologic Foundations of Immunity Against Malignant Tumors I M Neiman —p 519
- *Effect of Acute Infection on Function of Reticulo-Endothelial System. I M Neiman —p 543

Hypoglycemic Hormone of Suprarenal Gland—Medvedeva, in a series of previously reported experiments, demonstrated that the suprarenal cortex contained a substance which, when injected subcutaneously, exhibited a distinct hypoglycemic effect. The maximum effect was noted from two and a half to three and a half hours after the injection. The blood sugar diminished until only traces were left, in some cases to the point of total disappearance from the blood. The action of the hormone did not apparently depend on insulin, since it was effective in diabetic dogs as well. To determine the specificity of the hormone, to which the author wishes to apply the name "corticaline," the effect of various other tissue extracts were tried. Extracts were prepared by the same method from muscles, lungs, liver, pancreas, intestine, stomach and lymph nodes. Blood sugar determinations were made every half hour for four hours. None of the organs mentioned proved to possess an active principle capable of reducing the blood sugar. Muscle extracts were demonstrated to possess a distinctive hyperglycemic effect. These results support the author's belief in the specificity of corticaline as an active hypoglycemic hormone of the suprarenal cortex.

Acute Infection and the Reticulo-Endothelial System—Nieman injected 1 cc of a 0.05 per cent solution of trypan blue two or three times into the peritoneal cavities of white rats. This was followed by a bluish discoloration of the skin and the visible mucous membranes. The color gradually faded but was still present at the end of three months. At the end of this time the author made an incision in the skin of the back of the animals, laid a gauze sponge into it and secured it there with a suture. When, nine days later, the suture was removed and the gauze sponge was examined, it was found to be saturated with secretion and to be colored blue. At the same time it was noted that the bluish discoloration of the skin and mucous membranes began to fade. It thus appears that the colloidal particles of the dye, lodged in the cells of the reticulo-endothelial system for some time, were now transported to the seat of acute inflammation. The intensity of this process was such as to decrease materially the general discoloration of the skin and mucous membranes. The "blocking" of the system was thus cleared and its functional activity raised. The author suggests that infections terminating favorably may play a part in the stimulation of the functional activity of the reticulo-endothelial system.

Finska Lakaresällskapets Handlingar, Helsingfors

74 769 847 (Oct) 1932

- Contribution to Knowledge of Biologic Effect of Gamma Rays A Wallgren —p 775
- Clinic of Galactoceles R Hasselblatt —p 786
- *Contribution to Question of Treatment of Acute Infectious Inflammation in Inner Ear T Blomroos —p 793
- *Experiments on Action of Embryonal Extract on Speed of Wound Healing H Sandelin and G af Björkstén —p 826

Acute Infectious Inflammation in Inner Ear—Blomroos reports forty-six cases of acute diffuse suppurative labyrinthitis treated from 1919 to date, in all but two of which labyrinthectomy was done. Of the sixteen cases of acute otitis with labyrinthitis, fourteen of which showed a fully developed meningitis before resection, eleven, or 68.75 per cent, were fatal. He says that in otitis with acute diffuse labyrinthitis tending to rapid aggravation, operative treatment must not be delayed. Of the nine cases of chronic otitis with labyrinthitis and fully developed meningitis on admission, six, or 66.7 per cent, were fatal. Such cases call for operation at once and resection of the labyrinth. Of the fifteen cases of chronic otitis and acute labyrinthitis but not meningitis on admission, with meningitis appearing after admission in seven, twelve, or 80 per cent,

recovered. In these cases immediate lumbar puncture is advocated. If the cell content of the lumbar fluid is not abnormal, absolute quiet is ordained. If on repeated puncture within a few hours the cell count is definitely rising, immediate labyrinthectomy is urged. If, on the other hand, the labyrinth symptoms recede, possible operation is deferred until the acute stage subsides. Of the six cases in which labyrinthitis set in shortly after radical operation, three were fatal. Extreme care in radical operation in cases of fistula toward the labyrinth is considered the most effective means of avoiding these labyrinthitides.

Action of Embryonal Extract on Speed of Wound Healing—Sandelin and af Björkstén found that, in experimental animals treated with embryonal extract, wounds healed 20 per cent more rapidly than in the untreated control animals.

Hospitalstidende, Copenhagen

75 1303 1330 (Nov 10) 1932

- *Therapy in Liver Insufficiency Dextrose Insulin Therapy, Case of Hepatargia with Recovery After Insulin Dextrose Therapy E Polack —p 1303
- Tribrom Ethanol Anesthesia J M Wollesen —p 1320

Hepatargia with Recovery After Insulin-Dextrose Therapy—Polack presents a tabulated review of 110 cases, chiefly medical, treated with dextrose and insulin, including sixty-two cases of acute parenchymatous hepatitis. The treatment seems to him to be valuable in protecting the liver parenchyma.

75 1331 1358 (Nov 17) 1932

- Treatment of Tuberculosis of Skin A Reyn —p 1331
- Does Tuberculosis Progress Faster in Left or Right Lung? E A Kirketerp —p 1351
- Dextrose Treatment in Surgical Disturbances J Foged —p 1356

75 1359 1386 (Nov 24) 1932

- *Clinical Significance of Diastasia III Diastasia in Diseases of Biliary Tract J Foged —p 1359
- Tribrom Ethanol Anesthesia J M Wollesen —p 1375

Diastasia in Diseases of Biliary Tract—Foged made 1,500 analyses of the diastasia in 310 patients with gallbladder calculi or inflammation of the gallbladder. A pathologic diastasia was seen in about 15 per cent of the cases of inflammation of the gallbladder and uncomplicated gallbladder calculi, and in about 60 per cent of the cases of stone in the common bile duct. The symptom is ascribed to an irritation of the pancreas through the process in the biliary tract, in cases of stone in the common bile duct there is usually a retention of secretion, he says, due to obstruction in Vater's papilla. Pathologic diastasia is considered important in the differential diagnosis between common bile duct stones with jaundice and hepatitis and cancer of the head of the pancreas, an increased diastasia in cases of suspected stone in the ductus choledochus supporting this diagnosis, although the absence of pathologic diastasia does not testify against the diagnosis. A pathologic diastasia was found in 23 per cent of sixty-nine patients after intervention on the biliary tract, but not more often in cases of stone in the common bile duct than in uncomplicated gallbladder calculi.

Norsk Magasin for Lægevidenskapen, Oslo

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- Roentgenology of Duodenal Ulcer T Dale —p 1257
- What Part Does Acute Appendicitis in Girls and Young Women Play in Causing Sterility? P Bull —p 1285
- Influence of Experimental Acidosis on pH of Uterine Secretion Concerning Relation of Excretion of Mucous Membrane of Uterus I Aasland —p 1293
- Puncture Treatment of Postpneumonic Empyemas A J A. Arnesen —p 1305
- Series of Investigations in Participants in Military Marching Test A Schrumph —p 1313
- *Reticulo Endotheliomas Brief Review A Berg —p 1321
- Uremia, Hemorrhage in Sinus Node Adam Stokes Attack. A Jervell —p 1327
- Average Blood Pressure and Relation to Difference in Blood Pressure in Right and Left Arm M Kobro —p 1330

Reticulo-Endotheliomas—Berg reports a case of malignant tumor in the bronchial glands with structure corresponding to the Ewing sarcoma. He makes differential diagnostic comparisons between this tumor and tumors in the bone marrow with similar histologic structure, illustrating with cases from a sarcoma material. The possibility of a primary tumor in the lymph glands of Ewing sarcoma structure and the genesis of reticulosarcomas are discussed.

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL 100, No 9

CHICAGO, ILLINOIS

MARCH 4, 1933

THE USE OF LIVER EXTRACT INTRA- VENOUSLY IN THE TREATMENT OF PERNICIOUS ANEMIA

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S MILTON GOLDHAMER, M D
AND
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Following the demonstration in 1928 by Beckmann¹ and in 1929 by Cohn, McMeekin and Minot² that liver extract could be given intravenously to patients with pernicious anemia with good therapeutic results, numerous forms of the material have been used with success. The first published formula of a simply prepared product was that of Castle and Taylor³ in 1931. Their solution consisted essentially of liver extract No 343 N N R washed with ether and dissolved in physiologic solution of sodium chloride. A later modification (Strauss, Taylor and Castle⁴) was made by using an aqueous solution at a pH of 7.4.

Intensive studies of the blood changes following the intravenous use of Castle and Taylor's solution were made in our laboratories in May, 1931, and were reported in November, 1931.⁵ As the reactions following this treatment were too severe to make the medicine of routine clinical value, it was necessary to prepare a purified form. The fall in blood pressure, flushing of the face and other symptoms, described later, suggested the presence of extraneous substances of the nature of histamine, choline or guanidine. As these materials can be removed from solution by passing them through permutite,⁶ a method based on this principle was devised.

Although we have developed several modifications in the method of making the liver extract the following

is satisfactory. Several stages in the development are described, as many observations were taken with the use of material made by each method.

FORMULA A

Commercial liver extract (e g, Eli Lilly & Co's No 343 or Liver Extract-Parke, Davis & Co) is dissolved in water, 3 Gm in 100 cc. The solution is boiled for three minutes, filtered and cooled. It is then passed slowly through a column of freshly neutralized, washed permutite (Folin), 25 cm in length and 25 cc in volume. The solution is then filtered and sterilized by boiling or by heating to 80 C on three successive days. Instead of using the commercial liver extract powder, an aqueous extract may be made of whole liver, boiled, filtered, treated with 70 per cent alcohol and the filtrate from this employed for the permutite extraction.

Liver extract made from formula A was used for 626 injections in 106 patients. In 359 injections in 65 patients (1 to 19 injections) no reaction was noted. In 41 other patients given 267 injections, 97 reactions were noted as follows: Forty-one patients had one or more reactions, 21 had two or more reactions, 13 had three or more, 10 had four or more, 5 had five or more, 4 had six or more, 2 had seven or more, 1 patient had eight reactions. This last patient did not react every time, showing no reaction on seven other occasions.

FORMULA B

While it was evident that some patients never showed a reaction, there was still some substance present which affected certain individuals. It was found that this could be removed by adding acetone to the aqueous liver extract solution to the concentration of 70 per cent. After heating in a reflux condenser for fifteen minutes and centrifugating off the insoluble part, the acetone was distilled off at 50 C under reduced pressure, and the liver extract solution, brought back to the proper volume with water, was passed through the permutite, filtered and sterilized. With formula B no reactions, other than flushing of the face, have been noted in any of the patients (150 injections), even those who previously had reacted frequently. This extract is a deep yellow and has a reaction of about pH 4.4.

METHOD OF GIVING INJECTIONS

The present paper is a review of 1,000 injections given to 140 separate patients with pernicious anemia. The injections were given at the rate of 20 cc in from one-half minute to twenty minutes, with the patient lying down. The newer preparation (B) can be given at the more rapid rate although it is probably advisable to give the injection in about five minutes. Blood pres-

Read before the American Society for Clinical Investigation at Atlantic City, N. J., May 2, 1932.

From the Thomas Henry Simpson Memorial Institute for Medical Research of the University of Michigan Medical School.

¹ Beckmann, K. Die antianemische Wirkung parenteral eingeleiteter Leberstoffe. Verhandl. d. deutsch. Gesellsch. f. inn. Med. 40th Kong. 1928, 1: 331.

² Cohn, E. J., McMeekin, T. L., and Minot, G. R. The Nature of the Material Effective in Pernicious Anemia. Am. J. Physiol. 90: 316 (Oct.) 1929.

³ Castle, W. B., and Taylor, F. H. L. Intravenous Use of Extract of Liver. Maximal Response of Reticulocytes from a Single Injection Derived in One Hundred Grams of Liver. Preliminary Communication. J. A. M. A. 96: 1198 (April 11) 1931.

⁴ Strauss, M. B., Taylor, F. H. L., and Castle, W. B. Intramuscular Use of Liver Extract. Maximal Response of Reticulocytes from Daily Intramuscular Injection of Extract Derived from Ten Grams of Liver. J. A. M. A. 97: 313 (Apr. 1) 1931.

⁵ Isaacs, R., Goldhamer, S. M., and Sturgis, C. C. Effect of Liver Extract Intravenously on the Blood of Patients with Pernicious Anemia. J. Clin. Invest. 11: 313 (July) 1932. Goldhamer, S. M., Isaacs, R., and Sturgis, C. C. Short Interval Observations on the Effect of Liver Extract on the Blood of Patients with Pernicious Anemia. J. Clin. Invest. 11: 313 (July) 1932.

⁶ W. H. C. F. Folin, et al. A Reagent for Anemia. J. Biol. Chem. 26: 51 (Oct.) 1917.

at short intervals during and after the injection, in some patients for a period of twenty-four hours. The temperature and pulse rate were also recorded at set intervals. The material was given at body temperature and the syringe held in a special holder to insure a uniform rate of injection.

TABLE 1—Effects of Intravenous Method of Treatment on Thirty-Nine Patients

Patient	Initial Red Blood Cell Count (Millions per C Mm)	Observed Maximum Reticulocyte, per Cent	Calculated (for Oral Method) Maximum Reticulocyte, per Cent
1	0.75	53.2	43.0
2	0.78	45.8	42.4
3	0.82	68.3	40.9
4	0.85	42.2	39.8
5	0.88	45.0	38.7
6	0.98	46.5	35.8
7	1.00	37.0	34.6
8	1.08	52.0	32.3
9	1.09	65.0	32.0
10	1.18	85.0	29.5
11	1.27	40.5	27.3
12	1.27	39.5	27.3
13	1.81	36.5	26.3
14	1.38	33.7	24.6
15	1.43	49.5	24.9
16	1.49	28.0	22.5
17	1.52	24.2	21.9
18	1.70	26.0	18.7
19	1.70	23.4	18.7
20	1.74	36.4	18.1
21	1.75	26.9	17.9
22	1.75	23.8	17.9
23	1.83	28.9	16.0
24	1.86	28.8	16.2
25	1.87	58.0	16.2
26	2.09	20.3	14.1
27	2.10	16.5	12.9
28	2.17	33.0	12.0
29	2.20	22.7	11.6
30	2.40	11.2	9.4
31	2.43	11.2	9.1
32	2.47	12.2	8.7
33	2.48	20.8	8.6
34	2.63	8.2	7.2
35	2.64	11.1	7.1
36	2.94	8.7	4.6
37	3.03	10.4	3.9
38	3.20	3.1	2.7
39	3.23	9.5	2.0

For purposes of ease of manipulation, a 20 cc dose was selected as the most feasible, when slowness of administration is important. This type of extract may be given in from 2 to 5 cc doses intramuscularly. The most convenient dosage by the intravenous method was found to be 20 cc once a week until the blood count reached normal, then once every month. While this is the average dose, some patients may require more. The criterion of dosage is to give a sufficient quantity to keep the number of red blood cells within normal limits.

Table 1 shows the effects of the intravenous method of treatment on thirty-nine patients whose initial red blood cell counts were low enough to be followed by an appreciable reticulocyte increase during the first week of therapy. A mathematical study of the data, for use as standards for testing the potency of different preparations, is being published from this laboratory by Drs Goldhamer and Bethell.

EFFECT OF UNREFINED LIVER EXTRACT ON THE BLOOD PRESSURE

The effect of commercial liver extract (for oral use) dissolved in physiologic solution of sodium chloride, either directly or after first washing with ether as suggested by Castle and Taylor,³ when given intravenously, was studied on several patients. The first subjective sensation is a feeling of warmth, followed by a sinking sensation in the abdomen, sometimes a cramplike pain. This is temporary and is followed in some by a sensation of choking, air hunger, nausea, a peculiar feeling in the chest and pounding of the heart

Some complain of a tight feeling over the body or a tingling sensation in the toes and fingers. Objectively there is a flushing of the face, occasionally vomiting, perspiration and rapid respiration. The systolic and diastolic blood pressures fall rapidly, in one patient from 120 systolic, 80 diastolic to 90 systolic, 50 diastolic, within from 3 to 120 minutes. This may last from sixty minutes to forty-eight hours. A second fall in the blood pressure may be noted after from six to eight hours (chart 1). About forty-five minutes after the injection is finished a chill may start, and this may last from fifteen minutes to one hour. It varies in intensity from a chilly sensation to the most violent type of shaking. With this there is a rise in temperature to a maximum of 104 for from two to four hours. After the injection the urine becomes dark, owing to the excretion of pigment or nonabsorbed liver extract.

While the powdered liver extract from one commercial company caused a fall in blood pressure when dissolved in water and given intravenously, the material from another company caused a marked rise in the pressure accompanied by a headache, which in some cases was unbearable. This type of extract was made and divided into two portions. The one was left unchanged and the other was passed through permutite. The first portion was given to a patient, but the injection had to be stopped because of the intense pain in his head. The systolic pressure rose from 112 to 145. The headache subsided after about fifteen minutes, and then the permutite treated solution was given. There was no pain or reaction, although the blood pressure, which had fallen, rose once more to the high level for a few minutes. After this it rapidly returned to the pretreatment level (chart 2).

SUBJECTIVE SENSATIONS WITH PURIFIED LIVER EXTRACT

With the purified liver extract there are usually no subjective changes, although there may be a slight flushing of the face or a "sinking sensation" in the

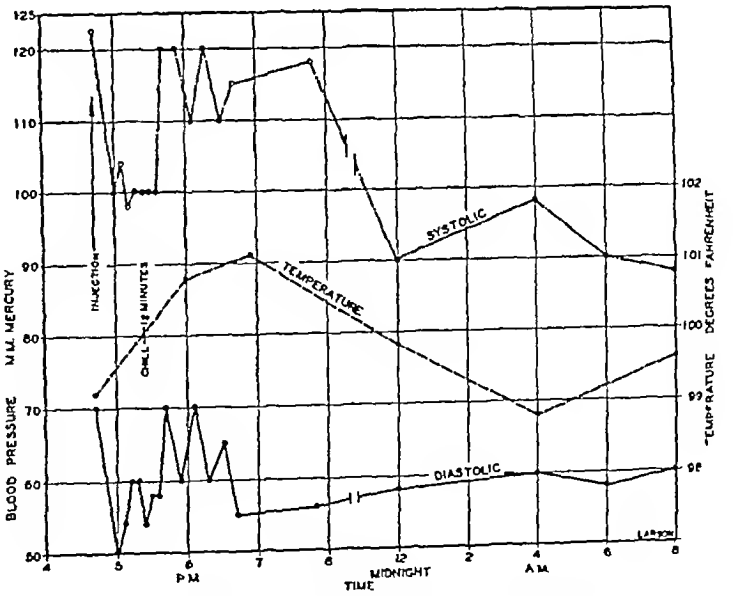


Chart 1—Effect of an aqueous solution of liver extract 343 A N R on the blood pressure and the chill and febrile response after intravenous injection

abdomen. When properly made, the liver extract seldom causes even these changes. There is no fall in blood pressure and no chill or elevation in temperature. Some patients, however, appear susceptible and will have a typical reaction when a preparation (e.g., formula A) is given that caused no reaction in other

individuals. Some of the patients received nineteen injections with no reactions, whereas twenty-one of the patients receiving the extract made according to the formula described showed reactions on two or more occasions. While speed of injection may have been a factor (Hirschfeld, Hyman and Wanger⁷), some other cause must be sought to account for most of the reactions. With the liver extract made according to the last formula (formula B, 70 per cent acetone-permutite) no reactions of any kind

have been noted, except flushing of the face, in 150 injections. There have been no local reactions at the point of injection, and no pain, sloughing or thrombosis have been noted. The clinical improvement has been marked and rapid in all patients who received an adequate dose of a potent material.

THE RETICULOCYTE RESPONSE

With the intravenous liver extract, the reticulocytes start to increase in number in from 12 to 24 hours, and reach their maximum percentage in from 68 to 108 hours. They decrease to less than 3 per cent in

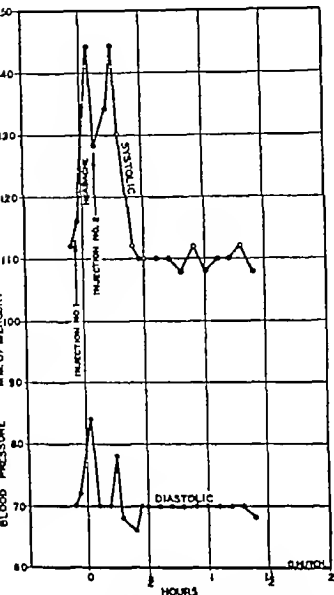


Chart 2—Effect of liver extract in intravenously before (injection 1) and after (injection 2) filtering through permutite. Injection 1 had to be stopped because of the headache. Injection 2 did not cause any pain.

264 hours. A detailed study of short interval changes in the blood count of these patients is being published by Drs Goldhamer, Isaacs and Sturgis, from this laboratory. Compared to the maximum reticulocyte percentage reached with six vials daily of a potent liver extract by mouth, the total of the average maximums was over two-fifths higher than the total of the averages calculated for this series. This is interesting when it is remembered that the response here is the result of giving liver extract made from about 125 Gm of fresh liver as compared with that from 4,200 to 4,800 Gm by the oral method. It is more comparable to the response obtained when massive doses of liver extract were given by mouth (Riddle and Sturgis⁸).

It is evident that much of the active substance is destroyed or not absorbed when the extract is taken by mouth. The intravenous route, which simulates the normal pathway of internal secretions of the liver to the body, supplies the bone marrow with a greater amount of the active material, and the maturation of the red blood cells is facilitated in larger quantities at one time.

INCREASE IN RED BLOOD CELL COUNT

In a group of eight patients whose average initial red blood cell count was 0.84 million per cubic millimeter (0.75 to 0.98), it required 63.9 days (34 to 100) to reach an average count of 4.35 million per cubic

millimeter (3.97 to 4.89). The average gain per week was 0.391 million per cubic millimeter for the whole period from the initial count to four million or more. The rate was most rapid during the first two weeks, averaging 685,000 per week during this period, with one intravenous injection per week. Two patients averaged an increase of 860,000 per cubic millimeter, during the first three weeks, and one patient increased at the rate of 1,220,000 per cubic millimeter per week.

In a group of ten patients with an average initial red blood cell count of 1.42 millions per cubic millimeter (1.09 to 1.89) it required an average of 50 days (30 to 79) to reach an average of 4.29 million per cubic centimeter (4.07 to 4.60). The average increase in red blood cells per week was 0.429 million per cubic millimeter during this period. Here also the rate was most rapid during the first two weeks, averaging 573,300 per week with one intravenous injection every seven days.

In a group of twenty-one patients with an average initial red blood cell count of 2.63 million (2.01 to 3.0) it required less than an average of 42.9 days (18 to 77) to reach an average of 4.38 millions per cubic centimeter (4.01 to 5.49). The actual time is probably somewhat less than this, as the patients did not report at as frequent intervals as when the counts were lower, and

TABLE 2—Intravenous Treatment Given J S*

Date	Red Blood Cells	Hemoglobin	Weight Pounds
June 2, 1931	1.1	22	137
June 25	2.0	55	137
July 13	2.7	75	141
July 22	3.6	85	141
July 30	4.1	82	147
August 28	4.1	75	150
September 20	4.4	85	148
October 23	5.0	90	156
December 4	4.0	85	162
Jan 7 1932	4.3	82	166
February 11	4.5	85	166
March 18	4.4	91	160
April 22	4.8	84	164
May 20	4.8	82	162
June 17	4.0	82	157
July 15	4.0	92	158
August 12	4.8	85	162
September 9	4.6	90	160

* Patient was given eighteen injections of liver extract in fifteen months without evidences of a relapse.

TABLE 3—Intravenous Treatment Given L J S M*

Date	Red Blood Cells	Hemoglobin	Weight Pounds
July 20 1931	2.4	56	180
July 28	3.2	61	131
August 5	3.8	78	134
August 11	2.9	75	
August 18	4.0	78	
September 1	3.8	88	
September 22	4.8	92	148
October 20	4.0	88	154
December 1	4.3	80	157
December 29	4.1	82	157
Jan 26 1932	5.1	90	157
February 25	4.7	92	156
April 1	5.0	93	157
April 29	4.7	92	158
May 27	4.2	84	163
June 24	4.3	83	166
July 29	4.7	85	160
August 26	4.5	89	158
September 23	4.5	97	163

* Patient was given nineteen injections of liver extract in fourteen months without evidence of a relapse.

so intervals of from one to three weeks may have elapsed after the counts reached 4 million. For this reason it was not feasible to estimate exactly the rate of improvement of eleven additional patients whose initial red blood cell counts varied from 3.04 to 3.81 millions and whose post-treatment counts were from 4.0 to 5.14 million per cubic millimeter.

⁷ Hirschfeld, Samuel, Hyman, H. T. and Wanger, Julius J. Influence of Velocity on the Response to Intravenous Injection. Arch. Int. Med. 47: 219 (1931) 1931.
⁸ Riddle, M. C. and Sturgis, C. C. The Effect of Single Massive Doses of Liver Extract on the Blood in Patients with Pernicious Anemia. Am. J. M.

There is some evidence that when intravenous injections are given more frequently than once a week the response is more rapid up to a certain physiologic maximum

MAINTENANCE DOSE

In fifty-six patients observed for a period of from six to seventeen months after the red blood cell count reached 4 million per cubic millimeter or over, it was found possible to maintain the normal level with one injection a month. Individual patients remained normal with injections at intervals of eight and twelve weeks. Patients with infections, especially cystitis, as well as those with arteriosclerosis, require more frequent treatment than others. In the four week group the contents of 13 vials (3 Gm) of liver extract of the orally administered type supplanted the dosage of 84 vials given by mouth. Up to the present, four patients have been maintained on one injection a month for seventeen months, twenty-three patients for twelve months or

ties, and an ataxic gait. The history of the disease extended back at least four years, and the neurologic symptoms had been an outstanding feature for a year. He had lost control of his feet one month before entering the hospital. The blood count on admission was 3,040,000 red blood cells per cubic millimeter, the hemoglobin was 63 per cent (Sahl). The lowest red blood cell count was 2,450,000 per cubic millimeter. The knee jerks and achilles response were hyperactive. There was a bilateral positive Babinski reflex and a positive Romberg's sign. The sense of motion and position were lost in the great toes, and the vibratory sense was diminished over both tibias, markedly so over the ankles, being completely lost on the right side. A slight diminution of pain, touch and temperature sense was noted in the legs. Tenderness of the achilles tendon was preserved. The patient was treated with liver extract intravenously, first at intervals of two weeks but monthly after the fourth dose. The neurologic symptoms improved steadily, and he was able to return to his work as a barber within five months. At the end of ten months the sense of position and motion of the toes was perfectly normal, the positive Babinski sign had disappeared, and sensation was normal. The vibratory sense had returned, although still diminished below normal in intensity. This, with brisk knee jerks, was the only neurologic abnormality.

INDICATIONS FOR INTRAVENOUS LIVER EXTRACT THERAPY

While the intravenous route may be used as a routine in the treatment of the average patient, it is especially applicable to patients who are unable or unwilling to take the medication by mouth. A small group of patients fail to respond to oral medication and in these individuals the intravenous route is necessary. Because of the long intervals between the doses, and the lack of discomfort, many patients prefer the intravenous method to the intramuscular route. The intravenous method also

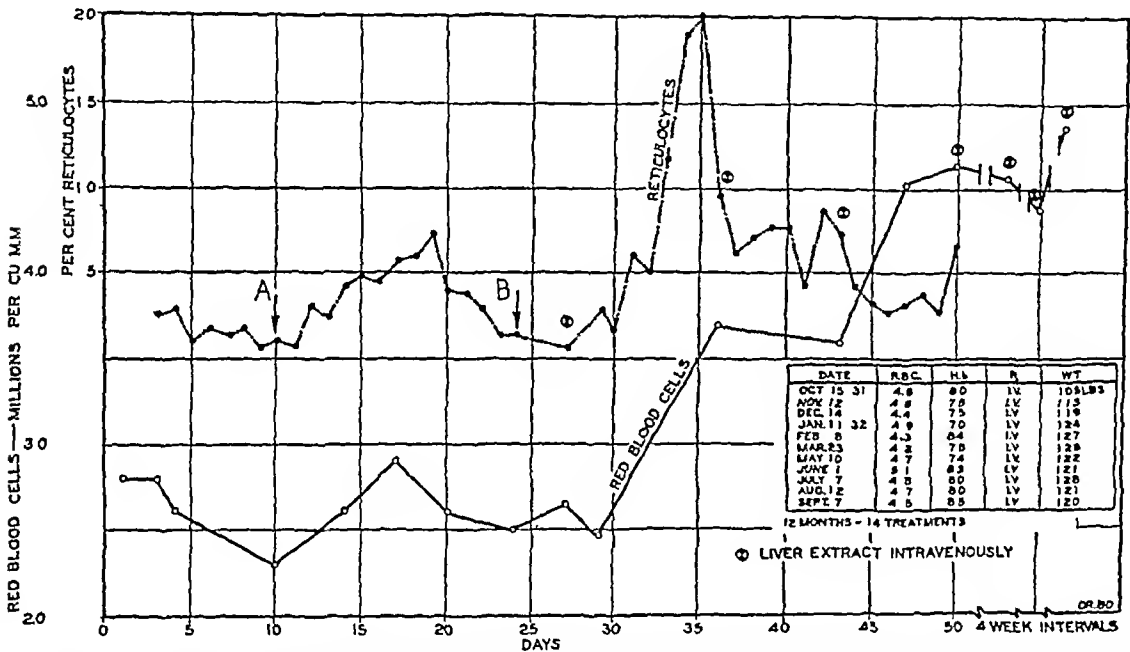


Chart 3—Reticulocyte and red blood cell changes in a patient who did not respond adequately to large doses of liver extract and desiccated hog stomach, but who showed a normal recovery with liver extract intravenously. The subsequent counts, following those plotted in the chart, are shown in the inset table. A, desiccated hog stomach started, B, desiccated hog stomach stopped.

longer, and twenty-five patients for ten months or longer without relapse (tables 2 and 3).

As previously mentioned, the actual maintenance dose for each individual must be determined separately, as some will no doubt require treatment at more frequent intervals.

The intravenous method of treatment fulfils ideally the postulates of Minot⁹ concerning adequate therapy. First, a large reserve supply is set up in the body so that sufficient material is available for all possible uses of the active substance. Secondly, as shown by the observation of fifty-six patients of this group from six to seventeen months, no neurologic progression has been noted, in fact, the same degree of improvement in the combined system disease as is noted with adequate liver therapy has invariably followed.

As an example of improvement in the neurologic features, the following report shows the adequacy of the intravenous method of treatment for this feature.

CASE 1—A white man, aged 49, a barber, entered the hospital because of nervousness, irritability, weakness, edema of the feet, ankles and hands, numbness and tingling of the extremi-

ties, and an ataxic gait. The history of the disease extended back at least four years, and the neurologic symptoms had been an outstanding feature for a year. He had lost control of his feet one month before entering the hospital. The blood count on admission was 3,040,000 red blood cells per cubic millimeter, the hemoglobin was 63 per cent (Sahl). The lowest red blood cell count was 2,450,000 per cubic millimeter. The knee jerks and achilles response were hyperactive. There was a bilateral positive Babinski reflex and a positive Romberg's sign. The sense of motion and position were lost in the great toes, and the vibratory sense was diminished over both tibias, markedly so over the ankles, being completely lost on the right side. A slight diminution of pain, touch and temperature sense was noted in the legs. Tenderness of the achilles tendon was preserved. The patient was treated with liver extract intravenously, first at intervals of two weeks but monthly after the fourth dose. The neurologic symptoms improved steadily, and he was able to return to his work as a barber within five months. At the end of ten months the sense of position and motion of the toes was perfectly normal, the positive Babinski sign had disappeared, and sensation was normal. The vibratory sense had returned, although still diminished below normal in intensity. This, with brisk knee jerks, was the only neurologic abnormality.

enables the physician to give a definite amount of medicine at known intervals, a feature which we have found to be an important cause of relapse when the patients are left to themselves to take the liver extract by mouth. The intravenous route makes it possible to give effective doses to patients who are nauseated or who vomit their food, and is, of course, the method of choice for comatose or irrational individuals.

A case illustrating the inability to use even large doses of potent material by mouth with quick relief by intravenous treatment is shown in the following report.

CASE 2—A man, aged 22, entered the hospital in his fifth relapse, his disease having dated back four years. He had had remissions induced by liver and by liver extract. In the previous relapse he had responded only to the juice of from 1 to 3 pounds of liver a day, desiccated hog stomach in doses up to 150 Gm daily for eighteen days having proved ineffectual. It required from 6 to 10 vials of Lilly's liver extract (343 N N R) to maintain his blood count at a normal level. When this was discontinued a relapse set in within a month. He was then given desiccated hog stomach, from 40 to 50 Gm a day, with a markedly submaximal response in both reticulocyte and red blood cell production (chart 3). He was then given liver extract intravenously and responded perfectly. Defective absorption of the active material from the gastro-

9 Minot G R The Importance of the Treatment of Pernicious Anemia on a Quantitative Basis J A M A 99 1906 (Dec 3) 1932

intestinal tract was the probable mechanism of the failure of medication by mouth, as nausea, vomiting and diarrhea were clinical features until the remission was induced

NATURE OF THE HEMATOPOIETICALLY "ACTIVE PRINCIPLE" OF LIVER EXTRACT

As the active substance is not held by permutite, it must be different in nature from histamine, tyramine, epinephrine, choline, hordenine, trimethylamine, lysine, histidine, piperidine, glucosamin, guanidine, hydroxylamin and lecithin. The other steps in the process of manufacture of the active extract eliminate the proteins. It is nonlipoid, as material extracted with ether or acetone is potent. Of the substances which are not held back by permutite, it is known from clinical tests that glutamic acid, cystine or cysteine is not effective

SUMMARY AND CONCLUSIONS

1 Substances causing reactions when liver extract is given intravenously may be removed by treatment with permutite and acetone

2 Intravenous injections of the extract made from 100 to 125 Gm of liver may be given weekly to patients with pernicious anemia until the red blood cell count is normal, then once every month as a maintenance dose. Proper checks should be used to determine the dosage required for each individual patient

3 A characteristic "reticulocyte response" is induced by this type of therapy, but the average maximum percentage is higher than that reached after about forty times as much material as is usually taken by mouth in divided doses daily

4 The subjective changes and neurologic improvement are marked features with this type of therapy

5 The intravenous method presents a distinct economy in the use of liver material and allows the patient freedom from daily medication, and a non-limited diet. It also assures the physician that the patient is taking a known dose of potent material at regular intervals

6 A favorable response is obtained by the intravenous use of liver extract in a small group of patients with pernicious anemia who do not respond to liver or desiccated hog stomach when given orally

Task of Purging the Materia Medica—Research in therapeutics can for convenience be considered from three angles—experimental pharmacology, chemotherapy, and experimental therapeutics—and in the case of new drugs investigation generally follows this logical sequence. This has not been, however, in the case of a large proportion of the drugs which are still in use, the historical order. It has been computed that about 50 per cent of the drugs in our present Pharmacopoeia were in use by the Arabic speaking physicians of the Middle Ages. Many others like cinchona and ipecacuanha, came to us early from the New World. All these had been first tested by direct observation of their effects on disease in man. Modern medicine acquired an unwieldy heritage of drugs so introduced. When the new science of experimental pharmacology began roughly about a century ago it was confronted with the Augean task of purging the materia medica of an accumulation of inactive and useless drugs. Experimental pharmacology at first led not to an increase, but to a decrease in the number of remedies in use. What frequently happened was that a reputed remedy when examined pharmacologically, failed to display such actions as could explain its therapeutic use. This led to a re-investigation of its therapeutic claims which were often proved to be ill founded and it was eventually discarded. It must be admitted however, that in this process of elimination pharmacology made many mistakes—Gibbs and A. Remarks on the Outlook of Research in Therapeutics *Bull. N. Y. Acad. Med.* 2: 89 (Aug. 27) 1932

THE EFFECT OF THEELIN INJECTIONS ON THE CASTRATED WOMAN

AUGUST A. WERNER, M.D.

WITH HISTOLOGIC REPORT BY

W. D. COLLIER, PH.D., M.D.

ST. LOUIS

The object of these experiments was to determine the effect of various dosages of theelin on human female castrates of different ages and varying length periods of castration. It was of particular interest to study the effect of this hormone on the subjective symptoms that accompany castration and on the involutionary changes that occur in the breasts and the genital tract following ovariectomy.

Stockard and Papanicolaou¹ described an exact method for following the estrual changes in the living guinea-pig by the vaginal smear. This method has been applied to the correlation of the estrual phenomena in the genital organs of the rat² and the mouse³. Allen and Doisy,⁴ employing ovarian follicle fluid from hogs, produced pubertas praecox in immature albino rats. The vagina of the immature rat is completely closed, its external third being a solid cord of cells. They found that the injection of the ovarian follicular hormone into immature rats, both normal and spayed, induced a sexually mature condition in the genital tract similar to that of an animal experiencing its first estrus. This was effected in from two to three days by from four to six injections of an active extract at an age as early as 26 days, or from twenty to fifty days before the usual time of the attainment of puberty. This work was later confirmed by Frank, Kingery and Gustafson.⁵

Allen and Doisy⁶ also devised a simple method of testing the potency of the follicular hormone by injecting a potent extract into spayed rats in which there was atrophy of the vaginal epithelium with the production of the estrous cycle on the third day.

Frank⁷ has demonstrated that an analogous potent hormone can be obtained from the follicles, the corpus luteum, the placenta and the blood of pregnant women. Allen, Pratt and Doisy⁸ determined quantitatively the ovarian follicular hormone in the follicle, corpus luteum and placenta of the human female and of some animals, including the cow and the pig.

Zondek and Aschheim, in 1927, found that the urine of pregnant women contains large quantities of the follicular hormone. Doisy,⁹ using such urine, was able to isolate the follicular hormone in crystalline form. This substance, like other isolated hormones, is of great potency.

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Because of lack of space this article is abbreviated in THE JOURNAL by the omission of a chart and the day by day reports of the cases. The complete article appears in the authors' reprints.

¹ Stockard, C. R. and Papanicolaou, G. N. Existence of a Typical Estrous in the Guinea Pig with a Study of Its Histology and Physiological Changes. *Am. J. Anat.* 22: 225 (Sept.) 1917.

² Long, A. J. and Evans, H. M. The Estrous Cycle in the Rat and Its Associated Phenomena. *Mem. Univ. California* June 1922.

³ Allen, Edgar. The Estrous Cycle in the Mouse. *Am. J. Anat.* 30: 297 (May) 1922.

⁴ Allen, Edgar and Doisy, E. A. The Induction of a Sexually Mature Condition in Immature Females by Injection of the Ovarian Follicle Hormone. *Am. J. Physiol.* 69: 577-588 (Aug.) 1924.

⁵ Frank, R. T., Kingery, H. M. and Gustafson, R. G. The Female Sex Hormone. *J. A. M. A.* 85: 20 (Nov. 14) 1925.

⁶ Allen, Edgar and Doisy, E. A. An Ovarian Hormone. *J. A. M. A.* 81: S19 (Sept. 8) 1923.

⁷ Frank, R. T. The Female Sex Hormone, Springfield, Ill. C. C. Thomas 1929.

⁸ Allen, Edgar, Pratt, J. P. and Doisy, E. A. The Ovarian Follicular Hormone: Its Distribution in Human Genital Tissues. *J. A. M. A.* 85: 6 (Aug. 8) 1925.

⁹ Doisy, E. A., Thayer, S. A. and Veler, C. D. The Crystalline Follicular Hormone Theelin. *J. Biol. Chem.* 86: 99 (April) 1930.

CONCEPT OF OVARIO-UTERINE (MENSTRUAL) CYCLE

A great amount of experimental work has been done in the past few years to determine the relationship of the anterior lobe pituitary sex hormones and the ovarian follicular and luteal hormones to menstruation. The human female, female apes and old world monkeys are the only animals that menstruate in the ordinary sense of the term.

Hitschman and Adler first described the well known so-called premenstrual changes that occur or were supposed to occur before each menstruation. Their theory did not associate the anterior lobe pituitary with the ovario-uterine cycle. The sequence of events in the human reproductive cycle according to this theory was that ovulation is a periodic function occurring regularly about the middle of the interval between two menstrual hemorrhages. The ruptured follicle from which the ovum has been extruded then develops into the corpus luteum, and this newly formed structure, acting as a gland of internal secretion, causes the development of the pregravid changes in the endometrium which are necessary for implantation of the fertilized ovum. If, however, the ovum is not fertilized, the corpus luteum regresses, and degeneration of the pregravid endometrium takes place with consequent menstruation. According to this idea, menstruation may be defined as bleeding from the uterus as a result of regressive changes occurring in a pregravid endometrium following the failure of implantation of a fertilized ovum.

ANTERIOR LOBE PITUITARY SEX STIMULATING HORMONES

The experimental demonstrations by Smith and by Smith and Engle¹⁰ of a follicle-stimulating hormone of the anterior lobe pituitary, and by Evans and Long¹¹ of a luteinizing hormone¹² from the same gland, have made the utero-ovarian cycle seem a bit more complicated.

Without the anterior lobe follicle-stimulating hormone, graafian follicle development and ovulation will not take place, and presumably, without the anterior lobe luteinizing hormone, the corpus luteum will not be formed at the site of the ruptured follicle. To carry this process one step further, without a corpus luteum no premenstrual changes will take place in the endometrium, and according to the older theories no menstruation will occur.

Sufficient experimental work has been done at the present time to question seriously, if not disprove, the idea that menstruation must occur from a pregravid endometrium.

Heape,¹³ working in India, collected many menstruating uteri of *Semnopithecus* and *Macacus rhesus*, very few of which were accompanied by ovaries containing corpora lutea.

Van Herwerden¹⁴ made a careful study of the uteri of eighty-seven of the Java macaque in which she found two types of uteri. 1 Those with a narrow mucosa, resting glands and poorly developed arterioles, in none

of these cases was there a corpus luteum. 2 Uteri with swollen mucosa, secreting glands, and thick-walled arterioles, all associated with corpora lutea. On the basis of these studies she postulated a breeding season in which the sexual cycle is characterized by ovulation, corpus luteum formation and the pregravid endometrium, with the possibility of conception. Alternating with this is the nonbreeding season, in which menstruation continues without ovulation and corpus luteum formation.

This work has been confirmed by Hartman,¹⁵ Corner,¹⁶ Edgar Allen¹⁷ and others, and by a long series of observations in the monkey colony of the Carnegie Institution at Washington, D. C.

Corner¹⁸ explored histologically the genital tract in a number of individuals of *Pithecius rhesus*, in which an accurately recorded, fairly regular menstrual cycle had been obtained. Only five animals were killed during menstruation, two on the first day of menstruation and three on the fourth. The endometria were dissimilar, only one showing the expected premenstrual growth. His work established beyond doubt the occurrence of menstruation in monkeys possessing a low, extremely simple and intact endometrium, the ovaries being without signs of preceding ovulation. He says

Histologically there are two types of menstruating endometrium, one showing premenstrual changes, the other devoid of them according to the occurrence or nonoccurrence of ovulation twelve to fourteen days beforehand. That the hemorrhage is one and the same phenomenon under these two different circumstances is of course my own assumption, but at least, the burden of proof now seems to be on the other side.

This work seriously questioned the correctness of the Hitschman-Adler theory of menstruation, founded on the gradual upbuilding and sudden destruction of the endometrium, which is generally thought to be the cause of menstruation.

Edgar Allen¹⁹ was able to produce menstruation in eight ovariectomized monkeys by the injection of follicular and placental extracts. Menstruation began within a few days after cessation of the hormonal injections. In these experiments, full premenstrual development of the endometrium was not obtained. He says "Theelin, alone of ovarian hormones, seems sufficient to supply the essential mechanism of menstruation." Allen²⁰ further states

Theelin produces the growth phase in the accessory genital organs. This includes accelerated growth of the vaginal epithelium, growth of the glands of the cervix and body of the uterus to the interval condition, probably some repair of ciliation of the tubes, and, toward the end of this interval, the initiation of growth in the mammary gland tree including the nipple.

EXPERIMENTATION ON WOMAN

The facts that previous experimental work on monkeys showed that menstruation may take place regularly without pregravid changes in the endometrium, and that a series of injections of follicular extracts into ovariectomized monkeys was followed by the onset of menstruation, stimulated the desire to determine, if possible,

15 Hartman, C. Menstruation Without Ovulation in *Macacus Rhesus*. Account of an Experiment abstr. *Anat. Rec.* 35: 13 (March) 1927.

16 Corner, G. W. The Relation Between Menstruation and Ovulation in the Monkey, *J. A. M. A.* 89: 22 (Nov. 26) 1927.

17 Allen, Edgar. The Time of Ovulation in the Menstrual Cycle of the Monkey *Macacus Rhesus*, *Proc. Soc. Exper. Biol. & Med.* 23: 381 (Feb.) 1926.

18 Corner, G. W. Cont. Embryol. Carnegie Institution, 1923, numbers 73 and 75.

19 Allen, Edgar. Effects of Ovariectomy on Menstruation in Monkeys, *Am. J. Physiol.* 85: 471 (July) 1928, *Am. J. Anat.* 42: 467 (Nov.) 1928.

20 Allen, Edgar. Endocrine Activity of the Ovary, *J. A. M. A.* 97: 17 (Oct. 24) 1931.

10 Smith, P. E. Ablation and Transplantation of Hypophysis in the Rat, *Anat. Rec.* 32: 221 1926. Smith, P. E. and Engle, E. T. Experimental Evidence Regarding the Role of the Anterior Pituitary in the Development and Regulation of the Genital System, *Am. J. Anat.* 40: 159 (Nov.) 1927.

11 Evans, H. M., and Long, A. J. The Effect of Feeding the Anterior Lobe Hypophysis in the Estrus of the Rat and the Effect of the Anterior Lobe Administered Intraperitoneally on Growth, Maturity and Estrous Cycle of the Rat, *Anat. Rec.* 21: 62, 1921.

12 There is much question at the present time as to the existence of a separate luteinizing hormone. The generally accepted idea is that there is one anterior lobe sex stimulating hormone which produces sexual development and the premenstrual ovarian phenomena.

13 Heape, W. *Phil. Tr. Roy. Soc. London* 185: 411, 1894, 188: 135 1897.

14 Van Herwerden. M. thesis, Utrecht 1905.

the effect of theelin on the uterus of the ovariectomized woman. A search of the literature does not reveal that this work has been done by a previous investigator.

The two outstanding difficulties encountered in attempting this work were, first, to obtain suitable subjects, and, second, to maintain unflinching cooperation. From a perusal of clinic and private records accumulated over a period of ten years, a list of about sixty castrated women was compiled. Out of this number eight women were found who were suitable for the work, and of these eight women only five gave their consent to assist in the experiments. These patients were told beforehand just what the method of procedure would be, that they would have to be seen daily, that they were to receive large doses of theelin over long periods of time and that they would have to submit to light curettages from time to time as was deemed necessary. The cooperation by these patients was perfect, not one injection was missed and all necessary curettages were assented to willingly.

The patients were observed daily, the breasts and genitalia were frequently examined, especially if any statement of a patient suggested some change of possible importance. Any changes in subjective symptoms were noted. These symptoms were described in a previous article²¹ based on a study of forty castrates and ninety-six cases of menopause.

THE PATIENTS USED

Four women who had complete bilateral ovariectomy performed and whose uteri were intact and one woman (patient 2) whose uterus had been removed were used in these experiments.²² Amenorrhea was complete in all since operation, except in patient 3, aged 28, who had been operated on four years previously. She menstruated regularly but scantily for one or two days for five or six months following the operation, but during the last three and a half years she had been completely amenorrheic. All patients had atrophy of the breasts and had had no noticeable vaginal mucous discharge since operation. All complained bitterly of the symptoms that accompany ovarian hypofunction, and this symptom was the chief factor which made it possible for them to submit to the experiment.

The physical examination of each patient did not reveal any abnormality except those mentioned. The pulse rate and blood pressure were normal in each individual.

LABORATORY EXAMINATIONS

All the patients had a hemoglobin determination, a red and white count, blood picture, Kahn test, urinalysis, basal metabolism test, five hour sugar tolerance test, electrocardiogram and photographs in the nude to show the type of the individual. All tests were normal in each patient.

EXPERIMENTAL PROCEDURE

Since it was desirable to know what effect theelin would have on the uterus and endometrium, it was necessary to do a preliminary curettage before beginning treatment. The cervix in each case was pale pink, and the cervical canal was contracted. For the first curettage each patient needed a forceful dilation, and patient 4 submitted to a general anesthetic, which was necessary for the first dilation.

INJECTIONS OF HORMONE

Theelin was the hormone used in all experiments.²³ In the literature relating to the experimental work done on animals, the authors frequently expressed doubt that sufficient theelin could be given to women to produce the results obtained in small animals. As there was no available information as to how much theelin might be necessary to accomplish this result, and as it was not known what untoward clinical or tissue reaction might be encountered, it was necessary to proceed carefully.

Following the initial curettage, each patient was given 4 cc of theelin, equivalent to 200 rat units daily, for twenty-eight days, 6 cc or 300 rat units daily the

TABLE 1—Observations in Five Castrated Women Before Treatment with Theelin

	Patient 1	Patient 2	Patient 3	Patient 4	Patient 5
Age	31 yrs	40 yrs	28 yrs	30 yrs	22 yrs
Age at castration	30 yrs	38 yrs	24 yrs	24 yrs	21 yrs
Time elapsed since castration	6½ mo	17 mo	4 yrs	5 yrs 9 mo	15 mo
Amenorrhea since castration	Yes	Yes	3½ yrs	Yes	Yes
Noticeable vaginal mucous discharge since operation	No	No	No	No	No
Atrophic endometrium before injections	Yes	None	Yes	Yes	Yes
Atrophy of breasts	Yes	Yes	Yes	Yes	Yes
Subjective symptoms of castration	Yes	Yes	Yes	Yes	Yes
Decreased libido	Yes	Yes	Yes	Yes	Yes

second twenty-eight day period, and 8 cc, or 400 rat units, daily the third twenty-eight day period. These injections were made about 1 inch deep into the upper gluteal region about 3 inches below the iliac crest, on alternate sides daily. A slight local burning sensation was noticed for about five minutes at the site of injections only after doses of from 6 to 8 cc were reached. During the last half of the 8 cc dosage period, injection areas were sensitive to pressure. These areas were exceptionally free from induration except in patient 2, who had a low-grade sterile abscess without rise of temperature in the left area at about the middle of the third twenty-eight day period. Patient 4 never experienced discomfort at any time. On the first, seventh, fourteenth and twenty-first days of the first twenty-eight day period, each patient was lightly curetted so that endometrial tissue might be obtained to determine what histologic changes, if any, had occurred. No anesthetic was used. After the fourth curettage it was decided that these operations were too frequent and if menstruation did take place, the objection would be raised that the women were bleeding from the curettages and not as a result of the hormone injections. Therefore, no more curettages were to be done unless some of the patients menstruated.

On the forty-fourth day, patient 1 had been bleeding from the uterus and vagina for eighteen hours, and

²³ A plentiful amount of this hormone was supplied by Parke Davis & Co.

²¹ Werner, A. V. Symptoms Accompanying Ovarian Hypofunction. *J. Missouri M. A.* 36:3369 (Aug.) 1931.

²² Correction: Patient 2, aged 40, who was used in the experiments evidently had the uterus removed. This woman had had the laparotomy done by a physician in his private office and was immediately removed to her home. No record was obtainable and no statement could be had from the physician. The patient was not certain as to what organs had been removed. One of the gynecologists who assisted me made an examination of the patient and decided that the uterus had not been removed. Although the supposed uterus was small and the depth of the cavity including the cervical canal by measurement was 1½ inches, or 1.5 inch, this was thought to be due to atrophy as a result of the operation. This woman was treated as the other patients were for the first eight days and then for two and one-half months subsequently but she gave no evidence of menstruation. Tissue obtained from seven curettages at various times throughout the experiment failed to show any endometrial tissue at any time in other words only cervical tissue was obtained. The lack of tissue lead to the conclusion that patient 2 had the uterus removed and had a long cervical canal. It would seem she had a "cervix" in every way as did the other patients except that her "cervix" was impossible for her record will be retained in the file.

at that time she was curetted. Except for this instance, no more curettements were done until at the end of the third twenty-eight day period, when all patients were curetted. At that time injections were to be discontinued to see whether menstruation would occur, as had been the experience of Allen in previous experiments on monkeys. To obviate the objection that bleeding was due to the last curettement, if these women menstruated following cessation of injections, the injection of 8 cc daily was continued for one week past the last curettement.

REPORT OF CASES

CASE 1—A white woman, aged 31, married, the mother of three children, 64¼ inches (163 cm) tall and weighing 159 pounds (72 Kg) nude, had had a bilateral salpingo-ovariectomy six and a half months previous to the onset of the experiments. Amenorrhea was complete and there had been no mucous discharge from the vagina since the operation. The breasts were relaxed and flabby. She had nine symptoms that accompany ovarian hypofunction.

CASE 2—A white woman, aged 40, married, the mother of one child, 59¾ inches (152 cm) tall and weighing 147 pounds (66.7 Kg) nude, had had a bilateral salpingo-ovariectomy and supracervical hysterectomy seventeen months previous to the beginning of the experiments. She had had amenorrhea since the operation. There had been no discharge of mucus from the vagina since operation. She had sixteen symptoms that accompany ovarian hypofunction.

CASE 3—A white woman, aged 28, 63½ inches (161 cm) tall and weighing 112 pounds (50.8 Kg), divorced, had had one abortion ten years before. A bilateral salpingo-ovariectomy had been done four years before. The patient menstruated from one to two days scantily each month for five or six months following operation. Amenorrhea was complete for the past three and a half years. She had nineteen symptoms that accompany ovarian hypofunction.

CASE 4—A white woman, aged 30, married, 64½ inches (164 cm) tall and weighing 174 pounds (79 Kg) nude, had had one full term pregnancy at the age of 17. A bilateral salpingo-ovariectomy had been done five years and nine months before. Since then, the patient had had amenorrhea, she had fourteen symptoms that accompany ovarian hypofunction.

CASE 5—A white woman, aged 22, divorced, 64½ inches (164 cm) tall and weighing 128 pounds (58 Kg) nude, had never been pregnant. Fifteen months before, she had a bilateral salpingo-ovariectomy. She had amenorrhea since the operation, with marked decrease in libido. She had fourteen symptoms that accompany ovarian hypofunction. The vaginal orifice admitted two fingers, the cervix was of normal size, firm and pale pink, there was no mucous discharge from the external os.

COMMENT

Human ovariectomy is followed in a rather short period of time by several characteristic phenomena, among which may be mentioned atrophy of the genitals, probably most noticeable in the uterus, amenorrhea, atrophy of the breasts, and a train of subjective symptoms due to autonomic nervous system imbalance. Scientific medical literature is replete with the results of experimentation on castrate laboratory animals, including the monkey, in which the various preparations of follicular hormone and theelin were used. These animal experiments give ample proof that the follicular hormone stimulates growth and certain functions of the accessory genital organs. The interesting work done on monkeys by Edgar Allen, Corner, Hartman, Robertson,²⁴ Morrell,²⁵ and other investigators approaches experiments on the human being.

The question has always remained as to whether women would or would not respond to injections of follicular hormone as did the monkey.

EFFECT OF THEELIN ON THE BREASTS

The first question to be asked is Will theelin restore the breasts and genital tract to normal development after castrate atrophy? All the patients experienced activity in the breasts, characterized by a sensation of fullness and actual enlargement, tingling in the gland tree and erection of the nipples. This was first noticed by patient 1 ten days after the onset of treatment, it was noticed in patient 2 on the ninth day, in patients 3 and 5 on the seventh day, and in patient 4 on the fourth day. These breast changes were constant throughout the treatment after their first appearance. In patient 2, a cloudy fluid not unlike colostrum could be expressed at all times following the onset of breast changes.

EFFECT OF THEELIN ON THE UTERUS

All patients had atrophy of the cervix and uterus (except patient 2, who had no uterus) as evidenced by the size and pale pink color of the cervix and the necessity of forceful dilation in all, which procedure required a general anesthetic in patient 4. Also, there was absence of noticeable mucous flow since castration, except in patient 3, and she had had no mucous discharge for the past three and a half years. Microscopic examination of specimens obtained at the first curettage before the onset of treatment revealed a markedly atrophic endometrium in patients 1, 3, 4 and 5.

On the seventh day after the onset of treatment, the cervix was darker and more vascular, and the canal was easily entered in patients 1, 3, 4 and 5. In patient 2 this was noticed the second week. Mucous discharge in such amount as to soil the underwear was first noticed in patient 1 on the fourteenth day, in patient 2 on the ninth day, in patient 3 on the seventh day, in patient 4 on the fourth day, and in patient 5 on the third day. These signs of activity in the cervix and uterus were continuous and increasingly prominent throughout the treatment.

Uterine bleeding occurred in all patients except patient 2. This patient showed increased vascularity of the cervix with mucous discharge and breast changes.

Patients 1, 3, 4 and 5 had uterine bleeding while receiving injections, and patients 3, 4 and 5 also bled after cessation of treatment. The bleeding in all patients, whether receiving injections or after their cessation, was always accompanied by the symptoms that usually accompany menstruation in most women. These women say that they feel as if they would menstruate or that they are fatigued and have a generalized aching, so frequently spoken of as a "no-account" feeling, they are tired and rather peevish. Accompanying this is low lumbosacral backache and a sensation of abdominal fullness and bloating, the pelvic organs feel heavy, and there are intermittent cramps of varying severity with a bearing-down sensation, which has been described as a feeling of the pelvic organs pushing out. The breasts are full, tense and tender, and the nipples are erected. The patients and the napkins had the characteristic odor that accompanies menstruation.

Patient 1 had uterine bleeding four times while on the treatment. The first hemorrhagic flow began on the tenth day following the onset of injections and three days following a curettage. The flow of blood was free and she saturated two napkins each day. The

²⁴ Robertson, D. C., Maddux, W. P. and Allen, Edgar. Ovarian Hormone Effects on Ovariectomized Monkeys. *Endocrinology* 14: 77 (March-April) 1930.
²⁵ Morrell, J. A., Powers, H. H., Verley, J. R. and DeFrates, J. The Results of Oral Administration of Amniotin to Monkeys, *Endocrinology* 14: 174 (May-June) 1930.

second period of bleeding began on the forty-fourth day, twenty-two days following a curettement, and lasted four days. The third bleeding began on the sixty-fourth day, twenty days following a curettagement, and lasted twenty-four hours. The fourth bleeding began on the eighty-fourth day, which was the end of the third twenty-eight day period. Curettagement was done after the onset of bleeding. Microscopic examination of the endometrium obtained at the last two curettages, which were done in the presence of bleeding, showed that these two specimens approximated the histologic changes characteristic of the interval endometrium of the normal ovario-uterine cycle.

The first endometrial specimen from patient 1 showed an old endocervicitis. That the bleeding in this case was not a result of the endocervicitis is evidenced by the fact that the patient had not bled before treatment, and all hemorrhages were accompanied by the usual characteristic signs and symptoms that accompany menstruation, both uterine and subjective. The two last specimens of endometrium obtained showed that the endometritis had cleared, and in these instances the bleeding could not be attributed to infection or inflammation.

Patient 3 had uterine bleeding three times while on treatment and once following cessation of injections. Each bleeding period was accompanied by the usual symptoms that accompany menstruation. The first bleeding began on the fifth day after the onset of treatment and lasted two days. The second bleeding began on the eleventh day and lasted twenty-four hours, and the third flow of blood began on the thirty-ninth day, eleven days after a curettagement, and continued for two days. The fourth bleeding began ten days after the end of the third twenty-eight day period, ten days after the last curettagement and three days following the cessation of injections, and lasted four days. The endometrium in patient 3 closely approximated the interval stage of development.

Patient 4 was beginning to bleed on the eighty-fourth day of treatment, which was the end of the third twenty-eight day period. A specimen of endometrium obtained on this day showed by histologic examination that it had reached the full interval stage of development. Five days after cessation of injections and two days following curettement, the patient bled for two days. Both of these bleeding periods were accompanied by the usual signs and symptoms that accompany menstruation.

Patient 5 had uterine bleeding twice while receiving the injections and once after cessation of treatment. The first bleeding occurred sixteen days after the onset of treatment. The second bleeding began on the fifty-ninth day, thirty-eight days after the last curettagement. The third bleeding occurred ten days following the last curettagement at the end of the eighty-fourth day and three days after cessation of injections. She bled four days total. All three of these bleedings were accompanied by the usual signs and subjective symptoms that accompany menstruation and the endometrium closely approximated the interval stage of development.

REVIEW OF SUBJECTIVE SYMPTOMS

All these patients had most of the subjective symptoms that accompany castration or ovarian hypofunction. Patient 1 was free of these symptoms about the twentieth day, patient 2 had marked improvement after the ninth day, but she later developed a sinus infection,

which caused some trouble. Patient 3 had improvement by the sixth day and felt normal within two weeks. Patient 4 was symptom free after the sixth day, and patient 5 after the seventh day.

EFFECT OF THEELIN ON LIBIDO

Patient 1 stated that she had increased libido after the third injection, patient 2 at five weeks, patient 3 at 7 weeks, patient 4 after the seventh day. As treatment progressed, this impulse became more compelling. Patient 5, aged 22, stated that "sexual desire was markedly decreased following the ovariectomy and that the injections of theelin had not increased it."

IRRITATION FROM INJECTIONS OF THEELIN

One would think that the continuous injection of such large amounts of any substance would cause excessive irritation.

TABLE 2—Observations in Five Castrated Women After Treatment with Theelin *

	Patient 1	Patient 2	Patient 3	Patient 4	Patient 5
Total days of continuous injections	93 days	89 days	91 days	91 days	91 days
Activity of breasts first noticed	10th day	9th day	7th day	4th day	7th day
Congestion of cervix	7th day	14th day	7th day	7th day	7th day
Marked mucous discharge from cervix	14th day	9th day	7th day	4th day	3d day
Uterine bleeding while receiving injections	Yes† 10, 44, 64 and 84th days†	No	Yes 5, 11, 39 days	Yes 84th day†	Yes 16, 59 days
Uterine bleeding after cessation of injection	No	No	3 days later	5 days later	3 days later
Subjective symptoms of menstruation with bleeding	Yes	No	Yes	Yes	Yes
Relief from subjective symptoms of castration	Yes 20th day	Marked improvement after 9th day	Yes 14th day	Yes 6th day	Yes 7th day
Increased libido	Yes 3d day	Yes 35th day	Yes 42d day	Yes 7th day	None
Curettements	1, 7, 21, 28, 44† and 84th† days	1, 7, 21, 28 and 84th days	1, 7, 21, 28 and 84th days	1, 7, 21, 28 and 84th† days	1, 7, 21, 28 and 84th days
Endometrial hyperplasia	Yes	No	Yes	Yes	Yes
Irritation from injections	After 8 cc dosage	After 6th week dosage	After 6 cc dosage	None	After 8 cc dosage

* All patients received 200 rat units of theelin during the first twenty-eight days, 300 rat units during the second twenty-eight day period and 400 rat units during the third twenty-eight day period.

† Bleeding, before curettements.

Patients 1 and 5 did not have any irritation until the dosage reached 8 cc. They then noticed a burning for about five minutes after each injection, which would pass away. Patient 2 had a severe induration in the left area at about the sixth week, unaccompanied by rise of temperature, which required seven weeks before it disappeared. At about the eighty-fourth day an induration developed in the right area, which cleared up promptly. After the onset of the 8 cc dosage there was tenderness in the injected area if pressure was made. Patient 4 never experienced any discomfort.

HISTOLOGIC REPORT (BY DR COLLIER)

The description of the various bits of endometrium obtained by curettagement are based on paraffin sections of the scrapings. The descriptions are confined to the largest bits of material that appear to be sectioned in a plane at right angles to the plane of the endometrial surface.

The first patient had a complicating factor of endometritis and endocervicitis, which made it difficult during the early part of the experiment to separate the changes produced by infection from those produced by theelin. The material obtained before the beginning of the experiment showed the least degree of atrophy that was found in any of the patients before the beginning of theelin administration. This might be expected, since the patient had been castrated only about six months prior to this curettage. There was a moderately thinned endometrium with a few shallow glands and an edematous, leukocytic infiltrated stroma. The inflammatory edema and leukocytic infiltration made the tissue appear less atrophic than it actually was. The bits of cervix obtained showed a chronic inflammatory reaction with superficial erosion and a metaplasia of columnar epithelial cells to the stratified squamous variety not only on the surface but also extending into the necks of many of the cervical glands. The deeper tissues were infiltrated by a moderate number of leukocytes, mostly lymphocytes and plasma cells, and more or less recently formed fibrous tissue.

Examination of the endometrial scrapings obtained a week after the beginning of theelin administration showed an increased activity of the inflammatory reaction already present at the beginning of the experiment.

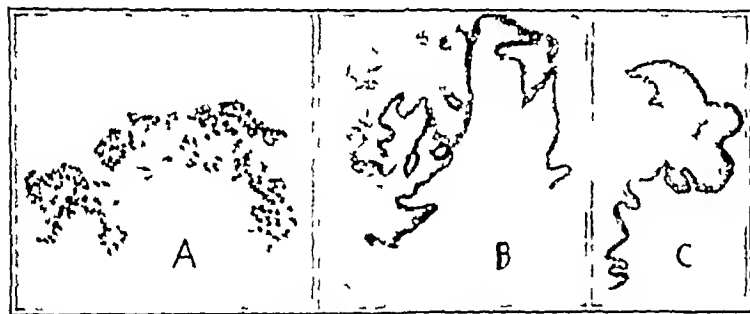


Fig. 1—Atrophic endometrium caused by castration. Condition before injections of theelin. A, patient 1, B, patient 3, C, patient 4.

No such inflammatory reaction was found to arise in any of the other patients of this series after the beginning of the experiments, so that one can be sure that the inflammatory reaction in this patient was in no way related to the theelin administration. It is probable that the mechanical irritation of the initial curettage stimulated the already existing process. It will also be seen that this inflammation cleared up during the course of the experiment while theelin was being administered.

A section of the endometrial scrapings taken two weeks after the beginning of the experiment still showed marked inflammatory reaction, so that any changes due to theelin were obscured if present.

A section of the scrapings obtained one week later showed a diminution of the inflammatory reaction. It was difficult to state the exact degree of true hyperplasia, although some degree was evident. The endometrium had not only become increased in thickness but had also become more completely differentiated into a more normal appearing tissue. This statement will be amplified in the description of the theelin induced changes in the other patients, since some might wish to believe that the changes in this patient were not due to theelin but were due to inflammatory repair.

A section obtained from scrapings removed twelve weeks after the beginning of the experiment showed a complete disappearance of the previous inflammatory reaction. There was a moderate increase in thickness

of the endometrium over that obtained at the beginning of the experiment, although it was still less in amount than is found in scrapings of normal uterus during the interval stage. The glands were more numerous and more complicated than those found in sections taken at the beginning of the experiment. The stroma density and cell type was quite normal in appearance but contained an unusual number of markedly congested vessels. This congestion was not related to the previous inflammatory reaction, because it became marked only during the period in which the inflammation was clearing, and it will be found later that this congestion is a prominent finding after theelin administration and is obviously a theelin effect.

The second patient of the series yielded scrapings that showed only strands of epithelium of the cervical type. At no time was it possible to demonstrate endometrial tissue from the fundus. It was found later that this patient had part (or all) of her uterus removed. From the evidence gained from six curettements on this patient, it is certain that the endometrium of the fundus had been completely removed. The only change in the cells during the experiment was a greater secretory function after theelin administration.

The third patient had a markedly atrophic endometrium at the beginning of the experiment. A section of the scrapings showed only strands of epithelium with a few adherent stroma cells. There was no evidence of gland formation. I doubt that there was a complete absence of glands, but there must have been a few glands, since none were seen in all the material, and they must have been exceedingly shallow, the scrapings were so thin.

There was no change from this pretheelin appearance of the endometrium in sections taken from material removed one, two and three weeks after the beginning of theelin administration.

A section of endometrial scrapings removed twelve weeks after the beginning of theelin administration and nine weeks after the last material mentioned showed a considerable endometrial growth. There was not only an increase in thickness of the endometrium but also a better differentiation of the tissue. The epithelial cells were better formed, more hyperchromatic and more numerous per unit of surface space. The glands were few but relatively deep. They showed some branching and some dilatation of the lumens but showed no intraluminal papillary projections. The stroma cells were of normal form in contrast to the edematous, mucoid state found previously. The stroma was quite compact for the most part but congested with blood in numerous large, endothelial lined blood spaces in the stroma.

A section of the endometrial scrapings of the fourth patient taken before the beginning of theelin administration showed a slightly less degree of atrophy than in patient 3, although patient 4 had been castrated almost two years longer than patient 3. There was only an occasional shallow gland and only a slightly greater amount of stroma. The stroma was of the same loose, pale staining character that has been found previously before theelin administration.

Sections of scrapings taken one and two weeks after theelin administration showed no appreciable change.

A section from scrapings taken a week later showed a considerable increase in the amount of endometrium. The thickness was greater than that found in patients 1 and 3 after twelve weeks of theelin administration, and the experimental period about four times as long as the duration of the experiment in this case. A few rather

deep glands were found. The stroma is largely of the compact normal type but there are a few patches of edema and a number of large vascular spaces.

A section of the scrapings removed nine weeks later, after twelve weeks of theelin administration, showed a still greater increase in thickness of the endometrium. The thickness was as great as that of normal, interval endometrium, but the architecture of the endometrium differed greatly from that of normal endometrium in that there were peculiarities in the glands and a considerable subepithelial hemorrhage. It is to be remembered that this patient was bleeding from the vagina at the time this curettage was done. The glands were relatively increased in number in comparison with the previous sections from this patient but were absolutely less in number than would be found in a normal endometrium. These glands had lumens of various diameters. They were sometimes found to branch. Some were cystic with intracystic papillary projections. The uterine bleeding, the subepithelial hemorrhage, the compactness of the stroma, the irregularity of the glands and the intracystic papillary growths made a combination highly suggestive of Cullen's hyperplasia of the endometrium.

The last patient of this series presented no formed tissue in the sections made from scrapings taken before the beginning of theelin administration.

A week later, a few shreds of epithelium with a few adherent stroma cells were obtained on curettage.

After two weeks of theelin administration there was considerable hyperplasia of the endometrium, moderate congestion and only slightly increased density of the stroma, but a rounder and more normal type of stroma cell and a few shallow but normal appearing glands.

After the third week of theelin administration, the hyperplasia was still greater than that found in the preceding section, the glands were more numerous and showed a greater variation in size of the lumens and in tortuosity. The stroma was much denser, with the exception of large vascular spaces.

After twelve weeks of theelin administration, the endometrium was as thick as would be found in the normal interval stage, the stroma was normal in appearance but the glandular growth was both excessive and atypical, and congestion was marked. The glands were

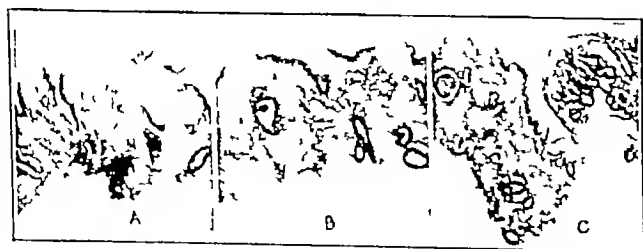


Fig. 2—Hyperplasia of endometrium after theelin had been administered for eighty-four days: A, patient 3; B, patient 4; C, patient 5.

atypical in the same manner as was described at length in the last stage of hyperplasia in the previous case.

SUMMARY

The endometrium was found to be atrophic in the female castrate. The degree of atrophy was not found to be exactly proportional to the duration of castration. The atrophy was made evident by a decrease not only in the thickness of the endometrium but also in the number and in the depth of the glands and there was a change in the stroma to a looser more fibrillar and more spindle cell type.

After theelin administration, there was a hyperplasia of the endometrium. This became apparent as early as three weeks after the beginning of the experiment in three of the four cases in which endometrium could be demonstrated. There was not only an increase in the amount of endometrial tissue but also a redifferentiation of the stroma to its normal type and a better differentiation of the epithelium. The epithelial cells became more hyperchromatic and the cells developed a clearer cut appearance. The glandular growth was atypical in that the hyperplastic glands

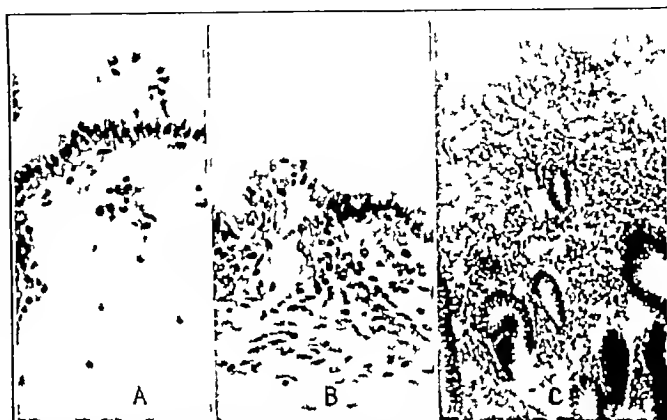


Fig. 3—Condition of endometrium in A, patient 4, before administration of theelin; B, patient 3, after twenty-one days; C, after eighty-four days.

were irregular in form, similar to the appearance of glands in Cullen's hyperplasia of the endometrium. There is a markedly increased congestion of the tissue with the formation of large, thin walled vessels filled with blood.

There is no suggestion of premenstrual change of pseudodecidual formation from stroma cells in any of the material even though some of the sections were taken at a time when there was bleeding from the uterus. The endometrium presented a picture quite different from that of premenstrual swelling in many respects. The thickening of the endometrium was never found to exceed that of the normal resting or interval stage and therefore was never as thick as is found in the premenstrual swelling stage. The glands of theelin hyperplasia were quite irregular in the diameter of their lumens and showed intraluminal invaginations, neither of which are changes characteristic of premenstrual swelling but are typical of Cullen's hyperplasia of the endometrium. The stroma became more compact and the nuclei of the cells became more hyperchromatic, both of which are changes diametrically opposed to the changes of premenstrual swelling but are in full accord with the changes in Cullen's hyperplasia. There was no apparent loss of endometrial substance at the time of bleeding, such as occurs in menstruation, although the nature of the material makes it quite possible that there might be some loss of tissue which might be undetected. It is certain that there was quantitatively less loss of tissue in theelin induced bleeding than in normal menstruation.

CONCLUSIONS

1 Theelin restores the breasts and genital tract of women to apparently the normal sexual state after previous castration atrophy.

2 Theelin produces changes in the atrophied endometrium of castrated women that approximate or equal the interval changes found in the normal women at the time of ovulation.

3 Theelin does not produce the pregravid changes in the endometrium of castrated women

4 The bleeding from the uterus of castrated women induced by theelin occurs from an endometrium approximating or equaling in development the interval changes found in the uterus of normal women

5 Theelin induces bleeding from the uterus of castrated women qualitatively indistinguishable from menstruation in normal women

6 This bleeding from the uterus of castrated women is accompanied by the subjective symptomatology usually experienced by normal women during menstruation

7 Theelin relieves the subjective symptoms that occur in women following castration

8 Four ovariectomized women to whom large doses of theelin were given state that "libido was markedly increased"

9 Excessive doses of theelin were given to women intramuscularly over a period of from eighty-nine to ninety-three days without seeming discomfort, until a dosage of from 6 to 8 cc daily was reached

Grand Boulevard and Lucas Avenue

COARCTATION OF THE AORTA

TEN YEARS' OBSERVATION OF A PATIENT STILL LIVING

M J SHAPIRO, MD
MINNEAPOLIS

Coarctation of the aorta is a term used to designate a narrowing or complete obliteration of the aorta usually in the region of the insertion of the ligamentum arteriosum, the vestigial ductus botalli, distal to the origin of the subclavian artery. Bonnet has described two types of this condition: infantile and adult. Characteristic of the infantile type is a diffuse narrowing of the aorta between the origin of the subclavian artery and the insertion of the ductus botalli. Further, this type represents a persistence of the intra-uterine circulation, is accompanied by a patency of the ductus arteriosus and is incompatible with life. The adult form of coarctation of the aorta consists of a sharp narrowing even to the extent of complete obliteration in the immediate vicinity of the insertion of the ductus botalli. Abbott and Hamilton,¹ who have made the most complete study of this pathologic picture, describe adult coarctation as follows:

In the pronounced cases of this type the constriction is so sudden and deep that the descending arch appears as though a ligature had been tied tightly around it at the strangulated part, and above and below this the aorta bulges outward in hour-glass fashion. In other cases there is a gradual diminution of the aortic trunk from the innominate or the left subclavian, rapidly narrowing after the origin of the latter vessel to the point of constriction. Internally, the effect of the external strangulation in narrowing the lumen of the vessel is frequently accentuated by a fold or septum or diaphragm which stretches across what remains of the aortic lumen, either closing this or leaving a small central or lateral aperture, often triangular in shape which may admit a "bristle," "probe" or "cow-quill" according to the degree and nature of the stenosis. The great vessels of the arch, especially the innominate and subclavian arteries, with their branches, are usually more dilated as are the first three intercostals emerging below the

stricture and the deep epigastric artery, for it is by means of these vessels that the collateral circulation, by which life is maintained in the extreme cases, is chiefly carried on.

No review of the literature on this subject will be attempted here. This has been excellently and recently done by Dr. Abbott.

It is interesting to note the increase in the number of cases of coarctation of the aorta reported in recent literature. This seems to indicate that this condition is not as rare as formerly supposed. Apparently the condition was not well understood and the diagnosis therefore missed. The diagnosis is not difficult to make when one keeps this cardiac anomaly in mind. As happened in the case here reported, coarctation is often mistaken for juvenile hypertension. The diagnosis is made on four characteristic observations: (1) hypertension of the upper extremities, (2) lowered or absent blood pressure of the lower extremities, (3) evidence of collateral circulation, and (4) erosion of the under surfaces of the ribs as demonstrated by roentgen examination. The erosion is caused by the dilated and tortuous intercostal arteries, which carry the brunt of the collateral circulation made necessary by the narrowing or complete obliteration of the aorta.

REPORT OF CASE

A boy first visited Lymanhurst Heart Clinic in 1923, when he was 7½ years old. There was nothing unusual in his past history. His mother stated that the family physician had diagnosed a "weak heart" at the age of 3 weeks. The boy looked unusually well, he was well nourished and especially well developed. He complained of easy fatigability and dyspnea on slight exertion. His mother had noted that his face was always unusually flushed. Nosebleeds had occurred quite frequently.

The physical examination at this time revealed no marked enlargement of the heart. A systolic murmur was present and heard best in the third left interspace along the border of the sternum. The murmur was transmitted toward the apex and upward toward the base. The blood pressure was not taken at that time. A diagnosis of possible early involvement of the mitral valve was made. On roentgen examination the size of the heart was found to be from midline to right border, 42 cm, from midline to left border, 76 cm, total transverse diameter of chest, 218 cm. The heart was globular, was slightly enlarged, and suggested the early changes caused by mitral regurgitation. Reexamination of this film at a later date revealed a slight but definite scalloping of the under surfaces of the upper ribs. Tonsillectomy was advised because the tonsils were enlarged and apparently diseased. The boy was seen again during 1923. No change was noted in his heart. His tonsils had been removed and he had put on considerable weight.

He was reexamined in February, 1924, at which time it was noted that he had gained 17 pounds (77 Kg) since the previous examination. The heart was unchanged. The blood pressure was 150 systolic, 100 diastolic. The diagnosis was now changed to juvenile hypertension. A restriction in diet was advised in order to reduce his weight. By April, 1924, the second aortic sound was quite accentuated and a short systolic murmur had appeared over the aortic area. The blood pressure was 135 systolic, 90 diastolic. An attempt was made to obtain the blood pressure in the legs but this was unsuccessful, no sound coming through at any time. Fluoroscopic examination showed moderate enlargement of the heart, the contour suggesting a first degree hypertension heart.

In 1925 the boy began to complain of his legs "going to sleep," especially the left leg. Examination of the heart showed no change. The blood pressure was the same. Later in the year he began complaining of buzzing in the ears and tiredness of the legs. He appeared unusually well and was not incapacitated in the least by his cardiac condition. Roentgen examination at this time showed the dimensions midline to right, 47 cm, to left, 89 cm, total transverse diameter of chest,

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¹ Hamilton W F, and Abbott Maude E. Coarctation of the Aorta of the Adult Type. *Am Heart J* 3: 381 (April) 1928.

23.2 cm. The heart by this time, at the age of 9, had taken on the characteristic boot shape of a "hypertension" or "aortic" heart. The scalloping of the ribs was more marked than on the first film.

The patient did not report to the clinic again until April, 1932, seven years later, at the age of 17, when he came to obtain permission to play football. He had been attending school regularly and offered no complaints voluntarily. On questioning, however, he admitted that he had been having dizzy spells, noises in the ears, frequent nosebleeds, pain in both knees, and tiredness of the legs. He stated that his legs often "went to sleep." He had developed into a robust, quite obese, unusually healthy-looking young man. His face was flushed, his body was well developed, and there was no disproportion between his arms and his legs. Marked pulsation was noted in the episternal notch and in the vessels of the neck. On close inspection, definite pulsation was detected in the superficial blood vessels of the interscapular region. The pulsating vessels could be palpated with the fingers in the intercostal spaces. On each side of the spine in the interscapular region a rather rough "hemic type" of murmur could be heard. The heart was enlarged downward and to the left. A systolic murmur was heard along the left border of the sternum and over the aortic area. The second sound was accentuated and snappy. The blood pressure in the right arm was 178 systolic, 100 diastolic, left arm, 170 systolic, 100 diastolic. The blood pressure was again unobtainable in either leg and no pulsating vessels could be palpated in the popliteal spaces nor could pulsation in the dorsalis pedis be noted. In order to demonstrate the difference in magnitude between the pulsation in the vessels of the upper and lower extremities, an attempt was made to obtain polygraphic tracings of the vessels of the lower extremities, but this was unsuccessful. On running the hand over the surface of the body a decided drop in temperature was noted about the waist line. This was especially marked over the entire left buttock. Thermocouple skin temperature determinations showed a difference of 57 degrees C between the temperature of the skin over the left shoulder as compared to the skin over the left buttock.

On fluoroscopic examination the heart was found to have enlarged since the previous roentgen study and now had the contour of a "second degree hypertension" heart. The ascending aorta was dilated and pulsated markedly to the right of the sternum. This pulsation stopped rather abruptly and was not visible to the left of the sternum. The normal aortic knob was not present.

The examination of the eyegrounds showed no evidence of any hypertensive changes or any other abnormalities. The electrocardiogram revealed a sinus arrhythmia and a slight widening of the QRS (0.10 sec.), otherwise it was negative. The basal metabolic rate in this case was normal. Because of the increased blood supply to the upper part of the body, coarctation of the aorta has been mistaken for hyperthyroidism and some patients have been operated on.

Roentgen examination of the heart at this time revealed the dimensions midline to right 5.4 cm., to left 10.8 cm., total transverse diameter of chest, 30.0 cm. The shape was that of a "second degree hypertension" heart and no aortic "knob" was visible. The aorta was not seen to the left of the sternum. The scalloping of the ribs had now become quite marked and definite areas of erosion could be detected in the under surfaces of the upper ribs. A special film of the ribs reproduced here-with shows this particularly well.

COMMENT

It has been of considerable interest to watch this case gradually develop over a period of ten years. The first diagnosis made was that of early mitral disease, which was soon changed to juvenile hypertension. The correct diagnosis of coarctation of the aorta was not made until years later. Rarely is this diagnosis made until adulthood. Many cases are discovered at the postmortem table after a sudden and unexplainable death in an apparently healthy young person.

These patients, as in the present instance, often present a picture of unusually good health. They are well developed and have a high color to the face as the result of the increased blood supply to the upper part of the body. They commonly do very well in scholastic work, possibly, as Dr. Abbott has suggested, because of the oversupply of blood to the brain. My patient is a very good student. Enlargement of the heart, especially of the left ventricle, is quite common but may not be present. The case reported here presents more and more enlargement, especially of the left ventricle. While valvular lesions often accompany coarctation of the aorta, this patient probably does not have any disease of the valves. The murmur heard along the left border of the sternum, over the aortic area and on each side of the vertebral column posteriorly is probably transmitted from the point of constriction of the aorta. The increased blood supply to the head is evidenced by the



Erosion and scalloping of ribs at the age of 17 years

marked pulsation in the vessels of the neck, the plethoric appearance of the face, the occasional attacks of buzzing in the ears and dizziness. On the other hand, the undersupply of blood to the lower extremities accounts for the "going to sleep" and tiredness of the legs as well as the coldness of the lower part of the body. In the majority of cases of coarctation of the aorta, symptoms do not occur until some intercurrent infection occurs which weakens the myocardium or until some sudden strenuous exertion so increases the hypertension in the upper part of the body as to cause a rupture either of the aorta or of the heart itself or of one of the collateral blood vessels.

Abbott has divided patients with coarctation into three types: (a) those in whom the condition remains latent throughout life, (b) those in whom a sudden unexplainable cardiac decompensation occurs in the prime of life, and (c) those who have symptoms of cardiac embarrassment from the very beginning.

The physical manifestations in my patient are quite characteristic and the diagnosis should have been made at the age of 9 years. This boy presents the hyperten-

sion of the upper extremities, the lowered blood pressure of the lower extremities, definite evidence of collateral circulation in the upper thorax, and erosion of the ribs at the early age of 7.

As in the present instance, coarctation of the aorta is often mistaken for juvenile hypertension. All cases of hypertension in children should be suspected of coarctation. An early diagnosis is important in order to protect these young people from undue exertion.

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PRIMARY TUBERCULOSIS OF THE PERICARDIUM

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One occasionally encounters a disease entity that is recognized and accepted by pathologists but is only vaguely known to clinicians. This appears to be true of primary tuberculosis of the pericardium. A review of the reported cases and an analysis of the several cases of this disease that have come to autopsy in this hospital revealed the fact that with only one exception (case 25) the clinical diagnosis at the time of death was recorded as "chronic myocarditis." In addition, this review brought out the fact that all these patients presented a rather surprisingly uniform and distinctive clinical picture, suggesting that the correct diagnosis might be made if the clinical features were known. It is with this in view that this paper is presented.

For the purpose of classification, tuberculosis of the pericardium may be divided into four main groups.¹

1 The tuberculous pericarditis may be part of a generalized tuberculous process.

2 It may be associated with a tuberculous polyserositis.

3 It may result from direct extension and rupture of adjacent tuberculous foci.

4 It may, as far as one can judge at autopsy, be either the only or the oldest tuberculous lesion.

The last group is known as primary tuberculous pericarditis.

Primary tuberculosis of the pericardium is known to pathologists as a moderately common pathologic entity. It occurs usually without other demonstrable tuberculous lesions, occasionally with a terminal miliary dissemination. These cases present the so-called bread and butter pericarditis appearance at autopsy. The pericardial sac is obliterated by a mass of tuberculous granulation tissue, which is most dense where it is attached to the visceral and parietal pericardium. The central zone between the two layers of shaggy granulations often contains a small amount of thick, blood-tinged fluid intermixed with necrotic, caseous debris. The opinion that this is a disease of elderly individuals is widely accepted by pathologists, and one finds such comments as "The pericardium is a frequent location for tuberculosis in the aged and in these cases it often occurs without other evidence of tuberculosis."² "This case illustrates the frequent occurrence in elderly males of pericardial tuberculosis unassociated with other tuberculous lesions."³ "The occurrence of pericardial tuberculosis in the aged without active tuberculosis else-

where is not uncommon."³ "The oldest tuberculous lesion in this case appears to be in the pericardium. As in the majority of cases observed here and elsewhere, the patient's age is well advanced."³ Attention is again called to the peculiarity of this lesion in the aged."⁴

REPORT OF CASES

CASE 1—In 1892, Virchow⁵ briefly reported the case of a man, aged 80, dying of rapidly progressive cardiac failure. Autopsy revealed tuberculosis of the pericardium without other tuberculous lesions.

CASE 2—In an analysis of seventeen cases of tuberculous pericarditis that came to autopsy, Osler⁶ reported an instance of primary tuberculous pericarditis occurring in a man, aged 52. There was a four months history of progressive cardiac failure with increasing dyspnea and terminal edema.

CASE 3—Meltzer⁷ reported a case of primary tuberculous pericarditis found at autopsy, in a man, aged 58, dying of a "sudden" heart failure.

CASE 4 (Fromberg⁸)—A woman, aged 71, with "progressive myocarditis," showed primary tuberculosis of the pericardium at autopsy.

CASE 5 (Marecaux⁹)—A man, aged 57, with "progressive cardiac insufficiency," died five weeks after the onset of symptoms. Autopsy revealed primary tuberculous pericarditis.

CASE 6 (Noscov¹⁰)—A man, aged 66, with a one month history of increasing dyspnea, presented at autopsy primary tuberculosis of the pericardium.

CASE 7—A differential diagnostic case was reported by Dr. Cabot¹¹ of a man, aged 80, with a three months history of progressive cardiac failure. The clinical diagnosis was "arteriosclerotic heart disease," the autopsy diagnosis, "primary tuberculous pericarditis with terminal miliary dissemination."

CASE 8 (Renaud and Chatagnon¹²)—A woman, aged 55, had symptoms of rapidly progressive heart failure. The heart appeared enlarged on percussion, the sounds were distant. Autopsy revealed tuberculosis of the pericardium without other lesions.

CASE 9 (Alston¹³)—A man, aged 70, had a two months history of increasing dyspnea. Examination revealed an enlarged heart with feeble sounds. He failed to respond to treatment and became progressively more decompensated and died. The clinical diagnosis was "chronic myocarditis," at autopsy the diagnosis was "primary tuberculosis of the pericardium."

CASE 10—Rawls¹⁴ reported a similar case occurring in a Negro, aged 51, who had a four months history of progressively increasing dyspnea and moderate substernal oppression.

CASE 11—Roubier and Langeneux¹⁵ reported the case of a woman, aged 62, who died one month after the onset of progressive dyspnea. She had an enlarged heart and poor heart sounds. The clinical diagnosis was "chronic myocarditis," the autopsy diagnosis, "tuberculosis of the pericardium." There was no other evidence of tuberculosis.

CASE 12—The same authors¹⁵ report a similar case in a man, aged 73, with a "short" history of increasing dyspnea. The heart was enlarged and the sounds were distant. "In spite of rest and digitalis, he became rapidly worse and died of cardiac failure two weeks after admission." The clinical diagnosis was "chronic myocarditis," the autopsy diagnosis, "primary tuberculosis of the pericardium."

4 Roubier, C., and Dubois (Mme.) *Progres med* 40 1626 (Oct 4) 1930

5 Virchow, Rudolf. *Berl klin Wchnschr* 29 1315 1892 cited by Hedblom. *C. A. S. Clin North America* 1 1411 (Oct) 1921

6 Osler, William. *Am J M Sc* 105 20 1893 cited by Hedblom

7 Meltzer. *Munchen med Wchnschr* 45 1086, 1898, cited by Hedblom

8 Fromberg, Carl. *Deutsche med Wchnschr* 39 1539, 1913, cited by Hedblom

9 Marecaux, M. *J d sc med de Lille* 2 155 1908 cited by Hedblom

10 Noscov, E. E. *Med Obozr* 67 788 1907 cited by Hedblom

11 Cabot, R. C. *Boston M & S J* 197 932 (Nov 17) 1927

12 Renaud and Chatagnon. *Bull et mem Soc med d hop de Paris* 50 1478 (Oct 22) 1926

13 Alston, J. M. *Edinburgh M J* 35 101 (March) 1928

14 Rawls, W. B. *Am J M Sc* 169 815 (June) 1925

15 Roubier, C. and Langeneux, Jean. *Lyon med* 112 213 (Aug 19) 1928

From the Department of Medicine, Columbia University College of Physicians and Surgeons and the Presbyterian Hospital.

1 Reisman, D. *Am J M Sc* 122 6 1901

2 Wolf, Beitr z klin d Tuberk 30 131 1914

3 Pappenheimer, A. M. Final note in autopsy protocol

Roubier and Dubois,⁴ in reviewing 1,300 autopsies, found 5 cases of primary tuberculosis of the pericardium without other tuberculous lesions. They call attention to the fact that the youngest of these patients was 67 years of age and stress the peculiarity of this lesion in elderly persons. The clinical features are given only in outline, but the authors suggest the possibility of making an antemortem diagnosis.

CASE 13—A woman, aged 84, had progressive heart failure.

CASE 14—A man, aged 77, had progressive heart failure

CASE 15—A woman, aged 67, had progressive heart failure and fever

CASE 16—A man, aged 73, had progressive heart failure and fever

CASE 17—A woman, aged 67, had progressive heart failure and fever

Mouisset and Bouchut¹⁰ report two cases

CASE 18—A mason aged 73, came to the hospital with a two weeks history of cough, increasing dyspnea and a severe cardiac oppression. His heart sounds were muffled, but the heart was not enlarged on percussion. In spite of rest, sedatives and digitalis, he grew progressively worse, edema appeared and he had a persistent unexplained fever of between 38 and 39 C (100.4 and 102.2 F). He died two months after the onset of symptoms. Autopsy revealed tuberculosis of the pericardium.

CASE 19—A man aged 71, came to the hospital with a three weeks history of progressive dyspnea and a sense of precordial oppression. The heart sounds were distant and weak, the rhythm irregular. His temperature during his stay in the hospital remained elevated, ranging from 36 to 38 C (96.8 to 100.4 F). In spite of rest, sedatives and digitalis he grew progressively worse and died. Autopsy revealed tuberculous pericarditis with a moderate right hydrothorax.

Mouisset and Bouchut comment thus on the clinical courses of their two patients "In the elderly, tuberculous pericarditis appears without localizing signs. In considering the diagnosis we recall the clinical importance of the recent inception of cardiac insufficiency. In these cases in spite of rest in bed in spite of milk diet, in spite of administration of diuretics and cardiac stimulants, the state of the patient does not ameliorate."

Audibert and Olmer¹⁷ report two cases of this disease in both of which the pathologic manifestations were similar to all the preceding cases and no other tuberculous lesions were found.

CASE 20—A man aged 49 had progressive heart disease

Case 21 — An elderly person" had progressive cardiac failure.

From the careful observations of these two cases Audibert and Ollmer discuss the symptoms, physical signs and clinical course of this disease suggesting the possibility of making the diagnosis. As their paper is the only one that has been found in which the clinical features have been stressed, their comments are presented in detail.

The onset of this disease is according to these authors insidious and occurs in patients who have no previous cardiac background. There is no history of rheumatic fever, syphilis or arteriosclerosis. The first symptoms are weakness, anorexia and slight loss of weight. These are shortly followed by the appearance of cardiac failure with dyspnea first only on exertion and later at rest and a sense of precordial constriction and heaviness. These symptoms progress rapidly and the patients seek admission to the hospital within a few weeks of the onset.

On physical examination these authors stress the four following cardinal signs

- 1 Dyspnea
2 Increase in cardiac dullness
3 Fever
4 General appearance of weakness The patients appear pale, tired and chronically ill

In addition, it is found that

- 1 The heart sounds are distant and muffled
- 2 There is often a mild cough
- 3 There is moderate progressive edema
- 4 The liver is enlarged

Examination of the heart by x-rays reveals cardiac enlargement

The course of these patients in the hospital is, according to these authors, quite uniform. The disease progresses rapidly, without remission and without response to treatment, to a fatal termination within a few months of the onset of symptoms.

They conclude that the diagnosis of primary tuberculous pericarditis should be very seriously considered

- 1 In a cardiac patient whose dyspnea progresses relentlessly without ever receding
- 2 In a cardiac patient who has a persistent unexplained fever
- 3 In a feverish cardiac case that progresses without remission to a fatal termination six or eight months after the onset of symptoms

During the past sixteen years, seven cases of primary tuberculous pericarditis have come to autopsy in the Presbyterian Hospital

CASE 22—A Bohemian laborer, aged 54 entered the medical wards with a two months history of rapidly increasing dyspnea on exertion. There had been no previous cardiac or respiratory symptoms. He stated that he had never had any of the symptoms of rheumatic fever but admitted having had a chancre as a young man. His present illness began suddenly and unexpectedly, two months before he came into the hospital, with shortness of breath on exertion. This increased persistently until admission and during the week before admission there had been increasing edema of the feet, legs and abdomen. Physical examination revealed that he was well developed and well nourished, and had obvious cardiac insufficiency. There was moderate orthopnea and considerable cyanosis. There was pitting edema of both legs and a distended abdomen, obviously containing fluid. The heart was enlarged to the right and left, there was no widening of the base. The heart sounds were described as very distant and faint. The rhythm was regular, with a rate of 110, no murmurs were heard. The pulse suggested pulsus paradoxicus. Death occurred twelve hours after admission. The only temperature taken was 99.2 F. At autopsy the pericardial cavity was found to be entirely obliterated by an old, long-standing process which on section presented large amounts of tuberculous granulation tissue and a wide caseous area. The heart muscle itself was normal. There was chronic passive congestion of various viscera. Dr R A Lambert made the following final note, summarizing the case. The presence of such an extensive tuberculous pericarditis without primary focus elsewhere is interesting. Dr Pappenheimer tells me however, that he has seen several such cases in individuals of middle age or older and that there are a good many cases of this sort reported in the literature."

CASE 23—A Chinese laundryman aged 57 came in with a three months history of progressive dyspnea on exertion and progressive swelling of the legs and abdomen. There was no previous history of cardiac or respiratory symptoms, there was no suggestion of rheumatic fever or syphilis in the past. Examination revealed an obvious cardiac insufficiency. There was moderate orthopnea and slight cyanosis with marked edema of the legs and an enlarged abdomen obviously containing fluid. The heart was described as being considerably enlarged.

the rate varied between 100 and 110, the rhythm was regular. The sounds at the apex were muffled and distant, there were no murmurs. The pulse was described as being very soft but otherwise normal. During his ten days in the hospital he became steadily worse, in spite of sedatives and digitalis. During this period his temperature was always elevated, ranging from 99 to 100 F, with one spike to 102.5. At autopsy, the heart and pericardium were identical with those in the previous case. Although several scattered tubercles were found in various organs, the pathologist felt that these represented a recent dissemination and that the primary lesion was in the pericardium.

CASE 24—A man, aged 79, American, a caretaker, came to the hospital with a history of increasing dyspnea on exertion and increasing swelling of the legs and abdomen of three months duration. There were no previous cardiac or respiratory symptoms, there was no suggestion of rheumatic fever or syphilis. Examination revealed an obvious cardiac insufficiency. There was moderate orthopnea but no cyanosis. There was moderate edema of the lower extremities. The heart was described as being greatly enlarged, the rhythm was totally irregular, the rate varied between 80 and 110, the sounds at the apex were barely perceptible. In spite of the usual cardiac therapy, he failed rapidly and died five days after admission. During those five days, his temperature varied between 99 and 100.2 F. At autopsy, lesions identical with those in the previous cases were found, and there was a terminal miliary tuberculosis of the liver, lung and spleen. Again the pathologist felt that the oldest lesion was in the pericardium.

CASE 25—An Irish watchman, aged 53, entered the hospital with a ten days history of increasing dyspnea and weakness. His past history was irrelevant, and there had been no previous cardiac symptoms. Examination revealed only slight dyspnea. There was no edema and no cyanosis. The heart was enlarged, the rate varied from 80 to 100. At first the rhythm was regular, but auricular fibrillation developed shortly after admission. The heart sounds were described as being distant. The patient remained in the hospital fourteen weeks. During this time he had a persistent, irregular fever, never below 99 and never above 103 F, for several weeks remaining between 99 and 101. During this entire time the symptoms of cardiac insufficiency progressed without remission, and he died sixteen weeks after the onset of his sickness. During this entire time the etiology of the progressive cardiac failure was obscure. Several weeks after admission a definite pericardial friction rub was heard and this suggested, together with the patient's course, the possibility of tuberculous pericarditis. At autopsy, lesions identical with those in the previous cases were found. Dr Pappenheimer's final note read "This case illustrates the frequent occurrence in elderly males of pericardial tuberculosis unassociated with other tuberculous lesions."

CASE 26—An American housewife, aged 62, came into the hospital with a two weeks history of rapidly increasing dyspnea and edema. There had been no previous cardiac or respiratory symptoms. Examination revealed an obvious cardiac distress. There was moderate orthopnea and cyanosis and tremendous edema of the abdomen, legs and back. The heart was moderately enlarged, the rate 90, the rhythm regular. The patient died three days after admission. During these three days, her temperature had remained at 101 F. Autopsy revealed, in addition to lesions identical with those seen in the previous cases, moderate general arteriosclerosis. Dr Pappenheimer's final note read "The occurrence of pericardial tuberculosis in the aged without active tuberculous lesions elsewhere is not uncommon."

CASE 27—A man, aged 70, Bohemian, an upholsterer, came in with a one year history of cough, loss of weight and fever, and increasing dyspnea on exertion. He was cachectic and chronically ill. There was evidence of pneumonic consolidation in both lower lobes. The prostate was hard and irregular, the heart was described as being enlarged and regular, the rate was 120, the heart sounds were moderately distant. The most probable diagnosis was thought to be carcinoma of the prostate with metastasis. He grew rapidly weaker and died ten days after admission. During this period, his temperature varied

between 99 and 103 F. His pulse remained between 110 and 120. At autopsy, many tuberculous lesions were found, including tuberculosis of the pleura, pericardium and genito-urinary tract. There was a terminal acute generalized miliary tuberculosis with tuberculous meningitis. Dr Pappenheimer's final note read "The oldest tuberculous lesion in this case appears to be in the pericardium. The picture here follows the rule in being unassociated with active pulmonary lesion, aside from the terminal miliary seeding. As in the majority of cases observed here and elsewhere, the patient's age is well advanced. The genito-urinary tuberculosis appears to have originated in the left epididymis and to have extended up the lumen of the vas deferens to the seminal vesicles and prostate. The generalized miliary tuberculosis is obviously of short duration, as is the meningitis, from the structure of the lesions, probably not older than one-two weeks. There is a very extensive but recent lobular pneumonia. Probably this latter is the immediate cause of death."

CASE 28—A German watchman, aged 65, came to the hospital with a two weeks' history of increasing dyspnea on exertion. He had also felt feverish during this time. There had been no edema. There was no history of previous cardiac or respiratory trouble. He had never had syphilis or rheumatic fever. On examination he appeared chronically ill, with moderate orthopnea. The heart was enlarged, the rhythm totally irregular, the rate varying between 100 and 120. The heart sounds were described as being very distant and of poor quality. There were no murmurs. He failed to improve on rest and digitalis and died ten days after admission, of cardiac failure. During these ten days his temperature varied between 100 and 102 F. At autopsy an old adhesive caseous tuberculous pericarditis was found, identical with those in the preceding cases.

In none of these cases was any significant abnormality noted in the blood pressure.

COMMENT

In many of the foregoing cases, adequate clinical information is lacking. However, in those reports in which this information is available and in my series of seven cases, the clinical picture of patients presenting primary tuberculosis of the pericardium at autopsy is surprisingly consistent and uniform. Audibert and Olmer,¹⁷ in their comments on the clinical aspects of their two patients, present the outstanding clinical features of this disease. Their criteria for diagnosis seem to be confirmed by the other cases. Their failure to stress the advanced age of these patients is explained by the fact that one of their patients was the youngest in the entire series.

The clinical picture presented by these patients is so consistently uniform that it seems as if a correct ante-mortem diagnosis should be made, provided the clinical features of this disease are known and the pathologic condition is suspected.

Certain points seem to occur with striking regularity throughout this entire group.

1 The age of the patients is well advanced, the youngest in the series being 49, the oldest 84, and the average 69.5 years.

2 The onset is insidious and occurs in patients without previous history of cardiac symptoms or evidence of previous rheumatic fever, syphilis or arteriosclerotic heart disease.

3 There is a presence of unexplained fever in all cases.

4 There is a rapidly progressive increase in the symptoms of cardiac insufficiency proceeding relentlessly to a fatal termination within a very few months of the appearance of the first symptom. "It is precisely

this rapidly fatal evolution and this striking failure to respond to treatment that identified this disease"

SUMMARY

1 Twenty-eight cases of primary tuberculosis of the pericardium, including seven of my own, present a uniform and characteristic clinical picture

2 The following points are of considerable diagnostic importance and should force one to consider this diagnosis the presence in (a) elderly individuals, of (b) cardiac failure, otherwise unexplained, which progresses relentlessly, without ever receding or responding to treatment, to a fatal termination within a very few months, and is associated with (c) a persistent, unexplained fever

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ACNE ROSACEA

RESPONSE TO LOCAL TREATMENT FOR DEMODEX FOLLICULORUM

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AND

NELSON PAUL ANDERSON, M.D.

LOS ANGELES

Since our recognition several years ago of the presence of *Demodex folliculorum* in the majority of our patients with acne rosacea and an allied condition which we have designated as pityriasis folliculorum (*Demodex*), our therapeutic results have been far superior to those obtained by the usual treatment of acne rosacea

In view of the fact that Kaufmann-Wolf¹ called attention to the frequent occurrence of *Demodex folliculorum* in the pustules of acne rosacea as long ago as 1925, it seems rather surprising that so little recognition has been accorded this valuable contribution. In fact, within the past few months Stokes and Beerman² have published an exhaustive study of the etiology of acne rosacea especially from an emotional and nervous point of view without making any mention whatever of *Demodex* as a possible factor

One might argue that, because *Demodex* is a more or less "normal" inhabitant of the human skin, it is without etiologic significance. Granting that the organism may be found on apparently normal skins, it usually is present in small numbers and may be found only by expressing sebum from some of the oil glands by pressure. This is in striking contrast with the large numbers of *Demodex* that can easily be found in many cases of acne rosacea, it is not uncommon to find ten or fifteen organisms in a single tiny follicular scale or superficial pustule. It would be just as fallacious to say that, because the staphylococcus is found on many healthy skins, it is without any causal relation to furuncles or carbuncles.

In two previous communications we³ have called attention to the frequent occurrence of *Demodex* in

acne rosacea and in pityriasis folliculorum (*Demodex*), a newly described clinical entity which is probably closely related to acne rosacea. Lawrence⁴ has recently confirmed the latter observation. On the other hand, we have been able to find *Demodex* only rarely in the pustules of acne vulgaris.

Our reasons for regarding *Demodex folliculorum* as an etiologic factor of importance in these two disorders are as follows:

1 The organism is easily found in from moderate to large numbers in pus from superficial lesions or in the dry follicular scales, whereas it is usually absent in acne vulgaris.

2 A rapid clinical improvement or cure follows the application of strong antiparasitic applications and the daily use of soap and water.



Fig. 1.—Typical severe acne rosacea of one year's duration. *Demodex folliculorum* was found in moderate numbers in pus from superficial lesions. Gastric analysis revealed moderate reduction of acidity.

3 Accompanying the clinical improvement there is a corresponding decrease in the number of *Demodex folliculorum* organisms that can be isolated from the skin.

Since the publication of these earlier reports, a total of seventy-seven patients in private practice have been seen who have presented the clinical picture of acne rosacea or pityriasis folliculorum (*Demodex*). The same conclusions that have been mentioned are applicable to this larger series. On these patients, fifty presented typical cases of acne rosacea. During the same period of time that these cases were collected, only thirteen cases of acne rosacea were seen which failed to reveal *Demodex folliculorum*. The accompanying table gives a summary of our observations.

4 Lawrence H. and Loebl R. Pityriasis Folliculorum (*Demodex*). *M. J. Australia* 1: 529 (May 2) 1931.

1 Kaufmann-Wolf M. Concerning the Usual Presence of *Demodex folliculorum* in the Pustules of Acne Rosacea. *Dermat. Wechschr.* 81: 1195 (Jan. 25) 1925.

2 Stokes J. H. and Beerman Herman. Effect on the Skin of Emotional and Nervous States. IV. The Rosacea Complex. A comparison with Special Reference to the Constitutional Background and the Pathologic Treatment. *Arch. Dermat. & Syph.* 26: 475 (Ser. 1) 1932.

3 Ayres Samuel Jr. Pityriasis Folliculorum (*Demodex*). *Arch. Dermat. & Syph.* 21: 19 (Jan.) 1931. Ayres Samuel Jr. and Anderson N. P. *Demodex folliculorum* Its Role in the Etiology of Acne Rosacea. *J. Clin. Invest.* 1: 17 (Jan.) 1932.

It will be noted that a considerable proportion of the patients used soap and water infrequently or not at all. It is felt that the excessive use of cold cream and powder and the substitution of cleansing cream for soap and water favor the development and multiplication of these



Fig 2—The same patient after three applications of Danish ointment. This photograph was taken exactly one week after the preceding picture, no other medication was used

organisms. This may partially account for the recognized predominance of acne rosacea in women. With all respect to the interesting paper of Stokes and Beerman, we do not feel that it is necessary to search so widely for the cause of this condition in most cases. A small droplet of pus obtained from a superficial pustule the size of a pinhead, placed on a glass slide and macerated with a drop of 40 per cent potassium hydroxide or glycerin, will usually show under the microscope from one to fifteen or more organisms. Usually the contents of two or three pustules are examined, or in those cases in which the complaint only of dry, rough skins is made, some of the minute dry follicular scales are picked off and examined in the same manner.

When such an examination shows the presence of *Demodex folliculorum*, local treatment alone will usually effect an improvement that is almost unparalleled in dermatologic therapy. Until recently we have employed an ointment such as is used for the treatment of scabies: betanaphthol, 2 Gm., sublimed sulphur, 4 Gm., balsam of peru, 15 Gm., petrolatum, 15 Gm. In spite of the fact that many of these patients have declared that their skin was so delicate that they could not even tolerate soap and water, we have obtained excellent results usually within from one to three weeks. The patient is instructed to wash thoroughly with soap and water every night and to apply the ointment for only three nights. There is usually a temporary increase of redness with some desquamation immediately following the

application of the ointment, which, however, subsides in several days. It is usually necessary to have the patient repeat the ointment once or twice a week for several weeks. There have been but few recurrences in our series of cases, and those which have recurred have been rather mild and have responded promptly to further treatment.

More recently we have used Danish ointment in the same manner with equally good results and with less irritation.

Observations in Seventy-Seven Patients*

	Acne Rosacea	Pityriasis Folliculorum	Total
Male	8	1	77
Female	42	26	
Little or no soap	25	20	45
Soap daily	12	4	16
Use of soap not stated	13	3	16
Gastro intestinal symptoms	23	8	31
Low gastric acidity	12	0	12
Normal gastric acidity	6	2	8
Cure or marked improvement within three weeks	29	18	47
Cure or marked improvement in from three to six weeks	16	3	19
Result not stated	3	5	8
Not improved	2	1	3
Recurrence recorded	10	3	13

* In these patients, *Demodex folliculorum* was found either in the follicular scales or in the superficial pustules in from moderate to large numbers. In some cases as many as fifteen organisms were found in a single low power microscopic field. All of these patients were treated by strong antiparasitic ointments locally. In only a few instances was any additional treatment used, such as x-rays or hydrochloric acid by mouth. The presence or absence of gastro intestinal symptoms was not recorded in all cases, of those listed, it was frequently of a minor nature.

We do not feel that the improvement is due to the effect of sulphur on the seborrhea, because some of the most striking results occur in those cases presenting dry skins and with no evidence whatever of seborrhea. The scaling mentioned in cases of pityriasis folliculorum is not of a seborrheic type but rather consists of fine dry

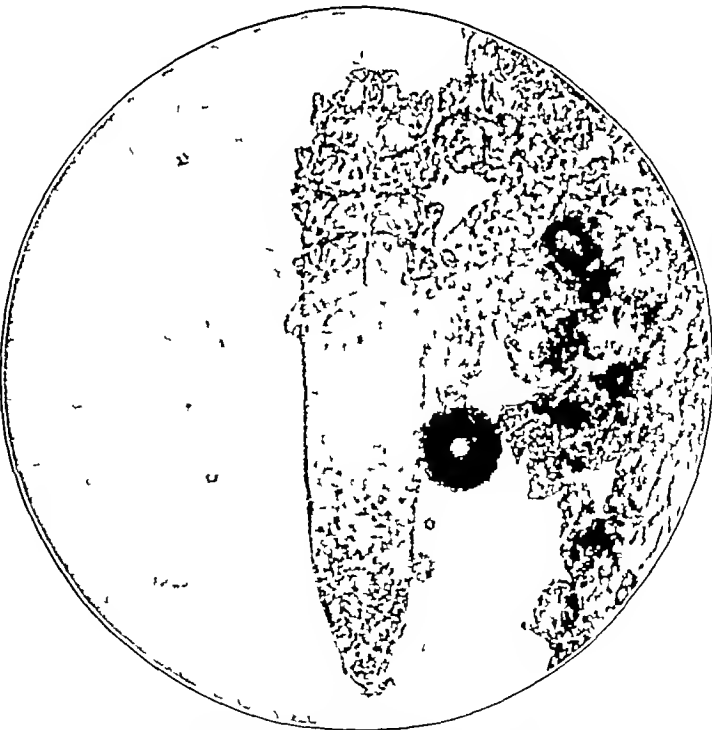


Fig 3—*Demodex folliculorum* (high power magnification of a specimen in 40 per cent potassium hydroxide)

inconspicuous white scales about the mouth of the sebaceous ducts or the base of the lanugo hairs, resembling the frosting resulting from an ethyl chloride spraying. Microscopic examinations of the contents of pustules or scales made on each visit show a progressive diminution in the number of parasites until no more

pustules or scales are available, which often occurs after the second or third week.

Of course, those patients who do not show *Demodex* must be treated according to the local and systemic indications in each case and undoubtedly a few of the cases with *Demodex* infection may need supplementary treatment, directed to the nervous system, gastrointestinal tract, and so on.

CONCLUSIONS

1 In seventy-seven cases of acne rosacea and pityriasis folliculorum (*Demodex*), *Demodex* folliculorum was found in superficial pustules and follicular scales in from moderate to large numbers.

2 In sixty-nine of these patients whose results could be followed, striking clinical improvement or cure was obtained in all but three cases by the use of a strong antiparasitic ointment.

3 Out of sixty-three cases of typical acne rosacea seen during the past two years, in which examination for *Demodex* folliculorum was made, the organism was found in fifty cases. With the exception of three patients who did not return for observation, excellent results were obtained in all but two of these cases by the use of a strong antiparasitic ointment without any other treatment.

4 Irrespective of any argument concerning the causal relationship of *Demodex* folliculorum to acne rosacea, the fact remains that local antiparasitic treatment as described has given clinical results far surpassing anything in our experience with this disease.

2007 Wilshire Boulevard

THE USE OF THE DRINKER RESPIRATOR IN THE AFTER-CARE OF INFANTILE PARALYSIS

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The use of the respirator in the acute stage of infantile paralysis has saved the lives of many patients with respiratory involvement.

Not only was the mortality of infantile paralysis with involvement of the muscles of respiration much greater before the invention of this machine but many of those who survived died subsequently with some lung disease resulting from diminished aeration.

In the after-care clinic of the Harvard Infantile Paralysis Commission, we have seen a considerable number of the patients who have survived this type of the disease and we have been impressed by the marked depression deformities that have developed in the chests of those who have not recovered the power of voluntary expansion of the chest.

The exact type of the deformity depends on the location and extent of the paralysis of the muscles of respiration. It is fairly common to find breathing carried on by the diaphragm with practically no expansion of the chest taking place on either side as a result of bilateral paralysis of the intercostal muscles. This in time produces a general depression of the chest which may be accentuated in the lower region if the patient has been allowed to sit unsupported in a slumped position. Greater weakness of the diaphragm and intercostals on one side of the chest results in an asymmetrical depression which suggests the flattened chest resulting from a collapsed lung. Loss of function in

the pectoral and sternocleidomastoid muscles also tends to increase the sunken appearance of the upper part of the chest, while some lower rib motion may be maintained by the diaphragm, with or without the help of the lower intercostal muscles. It is often difficult to estimate exactly the amount of motion produced by the different muscles, for strong action of the diaphragm produces motion of the lower ribs.

Having seen these patients with deformed chests and having seen demonstrated what the respirator would do in the acute stage, I conceived the idea of using the respirator as an exerciser after the need for its use to maintain life had passed.

The prevention of fatigue is one of the most important factors in the after-treatment of muscles affected by infantile paralysis, and this aspect of its use has been considered, for it produces chest expansion and breathing without muscular effort. The action is entirely passive motion, without fatigue. The value of rest and



Fig. 1—Contracted chest with depressed sternum following intercostal involvement five years before.



Fig. 2—Contracted chest following intercostal involvement six years before.

the prevention of contractures in other paralyzed muscles are recognized, and there seems no reason why the same principles should not hold good for the muscles of respiration.

Measurements of voluntary expansion of the chest, taken on a series of patients who received regular daily treatment in the respiration machine over a period of months showed a definite and steady increase from amounts under one-half inch up to two and three inches of voluntary expansion away from the machine. It was noticeable that this expansion was produced mainly by the intercostal muscles as in a normal person, without the excessive use of the accessory muscles of respiration such as the sternocleidomastoids, which, if present were very strikingly used at first.

From a medical standpoint, the increased aeration of the lungs and the deeper movement of the diaphragm in the abdominal cavity resulting from the use of the

feeling-discharge But as more and more these projections are deprived of their artificial feeling-content through the application of a technic which acts as a constant barrier to the passage of social affects along these habitual channels of interideational exchange, to the same degree these partitive affects become reassimilated within the patient's organism as total reactions¹⁰ In this way, feelings that were the expression of a sheer misplacement of the organism's integral sensations now operate in support of the organism as a total process

In the case cited, therefore, all interventive measures were reduced to the single unitary aim of restoring those reactions of the patient which, having become physiologically deflected, tended habitually to clutter the symbolic, cerebral avenues of interchange Our corrective measures were centered toward redirecting these deflected tensional alterations into the systemic paths of reaction which belong to the organism as a whole No effort whatever was made in the direction of altering the patient's ideas, illusions, references, ruminations or other "mental" symptoms, yet the patient's adjustment to his mental and social environment has been completely transformed While the sole focus of interest was directed toward the patient's internal tensions and skews, yet the corrective results were straightway registered in the sphere of his external adaptation He is now entirely free of his former projected concern as to his father's or any one else's ideas or projections in regard to him He has resumed interest in his studies, and his whole subjective attitude toward all his presumably subjective "symptoms" has become converted into a clear objective sense of their underlying physiologic meaning within him¹¹ The emphasis, then, of our altered position is an emphasis on the physiology of the interreactions which occur within the organism, individual and phyletic, as contrasted with those interreactions which are purely interideational or mental

Holding to a consistent laboratory attitude and directing our observations toward the interreactions occurring currently among individuals composing social groups, it was found that so-called mental disorder does not consist in a disagreement of ideas or of conduct between one individual and another, whether physician and patient, or father and son It was found that, while the symptomatology or outer appearances of mental disorder with its transference and resistance, its withdrawal or dependence, are always interindividual or social, the essential disorder does not consist in a disagreement between the thoughts or the ideas projected from the brain of the mentally ill individual as contrasted with the prevailing norm of ideas projected from the brains of a community of individuals These are merely the outer symptoms But, as is the case throughout the domain of medicine elsewhere, it was found that the disease from which the mentally disturbed patient suffers is circumscribed within his own body-processes and that this disease consists in a disagreement or disparity between a function of his own brain and that of his organism as a whole¹² The disorder is found to consist in a state of tension or alteration specific to the prosencephalic portion of a patient's organism in contrast to the general, systemic state of tension existing throughout his body generally The real disorder

consists in a physiologic conflict between the two species of attention or adaptation through which the organism is related to the external world—between those general internal tensional adjustments which relate the organism to the total object and those specific external tensional adjustments which relate the organism to the part representing the symbol of the object In brief, it has been found that the conflict is one between the physiologic tensions and strains pertinent to the partitive or cerebral mode of attention in contrast to the tensions and strains that belong to the organism's attention as a total, systemic function

As this altered physiologic approach gradually attains wider medical application, the physician who has hitherto treated ideas with ideas, will regard these ideas and interreactions of a patient as mere indicators of an underlying physiologic disorder within the patient's organism, and he will not seek to remedy these various arbitrary and unpredictable ideas and opinions as they exist socially within and about the patient¹³ However valuable these outer manifestations may be as aids in locating the true condition, the physician will no more attempt to treat a mental disorder by correcting the symptoms expressed in the patient's feelings or ideas than the stomach specialist would attempt to treat a patient for a disorder of the stomach by correcting the outer symptoms or sensations associated with it Like the stomach specialist, he will apply himself to the actual physiologic organism of the patient, and in doing so he will discover that the real disorder is not the patient's ideas in regard to himself nor his reaction to other people's ideas in regard to him In short, the physician will find that this conflict is not mental, social or interideational, but that it is physiologic He will find that tensional alterations, now symbolized as ideas and "emotions," have been artificially forced into the patient's cerebral system and that these physiologic alterations clash with and affront those organic tensions and reactions which pertain to the physiology of his organism as a total process¹⁴

In view of this physiologic disturbance in the tensional interrelations of the organism as a whole and of related structural manifestations, we must question the position of psychiatry toward mental impairments as being inconsistent with scientific procedure and therefore no longer tenable We must abandon the view that ideas are competent to remedy so-called mental disorders or that what are called mental measures of repair are applicable to what are called mental diseases From experimental studies covering many years in and with groups composed of normal and neurotic subjects, evidence is offered that the material that occupies the interest of psychiatry is not the material that constitutes the patient's disorder In short, our normal mental measures of repair, as they are now universally practiced, are without scientific basis for meeting the problem existing in those pathologic distortions of which we see only the outward signs and symptoms now characterized as "mental" disease

13 Burrow, Triggant The Social Basis of Consciousness London George Routledge & Sons, Ltd., and Kegan Paul Trench Trubner & Co Ltd New York Harcourt, Brace & Co 1927 pp 256, *Insanity a Social Problem*, Am J Sociol 32 80 87 (July) 1926

14 It is not at all realized how very small a percentage of mental conditions apart from those which have attained the stage of closed and inaccessible systematization ever reach the psychiatrist proper The mental conditions exist in the patients one finds in the offices of the general practitioner or even the dentist Such patients of course make ready contact with the Christian science healer with the theosophist and the chiropractors, not to mention the consultation rooms of the clergy of teachers, journalists social workers and others Indeed the clinical psychiatrist sees but an infinitesimal proportion of the masses of people who move in and out of our midst with definite symptoms of 'mental' disturbance

10 Burrow, Triggant The Reabsorbed Affect and Its Elimination, Brit J M Psychol 6 209 218 (Nov) 1926

11 Burrow, Triggant So-Called 'Normal' Social Relationships Expressed in the Individual and the Group Am J Psychiatry 10 101 116 (July) 1930, *Physiological Behavior Reactions in the Individual and the Community*, Psychol, London 11 67 81 (Oct) 1930

12 Burrow, Triggant The Physiological Basis of Neurosis and Dream, J Soc Psychol 1 48 65, 1930

CONCLUSION

A laboratory study of man and his reaction as a total process gives indication that the false ideas, the delusions and phobias, the mood-alternations of elation and depression, the emotional conflicts, the repressions and overaccentuations characteristic of mental disease, all are but reflections of an impairment that is deeper seated within the organism. This impairment consists in tensions, alterations and disturbances that affect definite body processes. In a word, the conflict or disparity present in mental disorders consists in a discrepancy between those feelings and sensations which belong to the organism as a whole and those sensations which belong to that circumscribed segment of the organism located in the cephalic region with its secondarily acquired ideas and images. As this conflict consists in a disparity between two clearly defined body zones, it is a physiologic disparity. Such a condition is perceptible and remediable only through recourse to physiologic methods of repair and not through a program which attempts to exchange ideas for ideas and images for images.

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THE METABOLISM OF ALCOHOL

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The effect of alcohol on the acid-base balance has not been studied except by Thomas,¹ who noted a diminution of the carbon dioxide content and carbon dioxide capacity of the blood after the ingestion of alcohol. In the present investigation, the influence of alcohol on the p_{H} , carbon dioxide content and carbon dioxide capacity of arterial blood was determined in thirty dogs and twelve human subjects. The blood

TABLE 1—*Effect of Alcohol Ingestion on Blood Dextrose, Mg per Hundred Cubic Centimeters*

Subject	Dose of 10 per Cent Alcohol Cc per Kg	Before	After	1/4 Hr	1 Hr	2 Hr	7 Hr
Dog 1	50	90			106	127	
Dog 2	10	94		99	103	104	98
pu value		41		7.20	7.23	7.25	7.31
Man	10	84	83		94	88	

samples were also analyzed for lactic acid, dextrose and alcohol. In the dogs blood was drawn from the femoral artery, and in the human subjects from the brachial artery. Both dogs and human beings were studied in the post-absorptive state and without narcotics other than the alcohol which was always given in 10 per cent solution. As a result of these studies it was found that alcohol produced an acidosis which was evident in changes of pH and carbon dioxide

capacity and content as well as of the lactic acid and dextrose concentration of the blood. The results on human beings and dogs were similar.

In eighteen out of twenty-one experiments on dogs and in all the human experiments the blood sugar rose. In a typical case (table 1) the dog was given 50 cc of 19 per cent alcohol per kilogram of body weight, and the increase in blood sugar was 28 mg per hundred cubic centimeters in two hours. One of the human subjects was given 10 cc of alcohol per kilogram of

TABLE 2—*Effect of Alcohol Ingestion on Lactic Acid, Mg per Hundred Cubic Centimeters*

Subject	Dose of 10 per Cent Alcohol Cc. per Kg	Before	After	$\frac{3}{4}$ Hr	$2\frac{1}{4}$ Hr	6 Hr
Dog	50	14			25	
Man	10	15	24	18	30	26

body weight The total amount of alcohol is the same as that contained in a tumblerful of whisky 100 proof One hour was required to drink the liquid At the end of that time the blood sugar had risen from 84 to 93 mg per hundred cubic centimeters, three fourths of an hour later it was 94 mg, and six hours after the ingestion of the alcohol the blood sugar had returned to 88 mg per hundred cubic centimeters

This increase in blood sugar is probably not due to a transformation of alcohol to dextrose. However, it is not unlikely that the tissues remove less dextrose from the blood, since alcohol may take the place of foodstuffs in supplying energy to the body. In addition to a diminished removal of dextrose from the blood there is probably a greater amount of that substance entering the blood stream. This may be due either to the narcotic effect of alcohol, which may diminish oxidations in the liver and thus permit the cleavage of glycogen and the formation of dextrose, or to the acidosis which favors the breakdown of glycogen to dextrose. The observations on dog 2 (table 1) reveal that the rise in blood sugar is accompanied by a fall in p_H .

Alcohol acts as a glycogenolytic agent not only on the liver glycogen, thus increasing blood sugar, but also on muscle glycogen, which is broken down to lactic acid and therefore increases the lactic acid content of the blood. A rise in blood lactic acid was found in ten out of seventeen experiments on dogs. For example, increases in lactic acid from 14 to 25 mg per hundred cubic centimeters in the dog and from 15 to 30 mg in the human subject are shown in table 2. This effect of alcohol may be explained as a result of insufficient oxidation in muscle, due perhaps to reduced blood flow and to an inhibitory effect on cellular respiration. It is well known that when oxidations are inadequate, lactic acid accumulates in muscle and is poured into the blood stream.

In the lactic acid content of the blood increases, the carbon dioxide capacity or alkali reserve might be expected to decrease, for the accumulated lactic acid would rob bicarbonate of its base, thus diminishing the amount of alkali available to combine with carbon dioxide. In each of twenty-four observations made in the course of eight experiments the capacity fell. In one dog (table 3) the carbon dioxide capacity starting at 45.4 volumes per cent fell to 34.5 in two hours and returned to 43.0 six hours later. In a human subject the carbon dioxide capacity started at 46.2 and

1. In the Department of Health and Human Services, the University
of California, there has been a meeting with the staff of
the Department of Health and Human Services, the American Medical
Association, and the American Dental Association. 41 x 189

decreased to 43.0 per cent at the end of six hours (table 3)

Decrease in blood capacity would be expected to liberate carbon dioxide from its union with base, thereby increasing the carbon dioxide held in solution by the blood. Ordinarily this sets into operation a

TABLE 3—Effect of Alcohol Ingestion on Carbon Dioxide Capacity of Whole Blood at 40 Mm Tension of Carbon Dioxide

Subject	Dose of 19 per Cent Alcohol, Cc per Kg	Before	After	1 Hr	2 Hr	6 Hr
Dog	50	45.4		40.9	34.5	43.0
Man	10	46.2	46.0	43.7		43.0

series of adjustments producing hyperventilation and eliminating the freed carbon dioxide. However, with the depression of the respiratory centers by alcohol, the usual adjustments for the elimination of carbon dioxide do not take place, and a rapid retention of carbon dioxide with a depression of the p_H occurs. The initial effect on carbon dioxide content of the blood was variable. In one experiment there was a transitory rise in carbon dioxide content, and in three others it remained unchanged in the first observation after the ingestion of alcohol. Ten other experiments disclosed a progressive diminution of carbon dioxide content.

TABLE 4—Effect of Alcohol Ingestion on Carbon Dioxide Content of Whole Blood, Volumes per Cent

Subject	Dose of 19 per Cent Alcohol, Cc per Kg	Before	After	¼ Hr	1 Hr	4 Hr	6 Hr
Dog	50	44.1		37.8	34.7	36.7	
Man	10	48.3	45.4		44.7		45.1

The final effects, however, were uniform, and in all the experiments the carbon dioxide content fell. In the dog (table 4) the content was lowest one hour after alcohol was taken, the decrease being from 44.1 to 34.7 volumes per cent. A human subject exhibited a decrease from 48.3 to 44.7. The carbon dioxide capacity or bicarbonate in one series of observations (table 5) fell during the first hour and a quarter after the ingestion of alcohol and the carbon dioxide content, after a minor decrease, returned toward the original value. One may infer from this fact that there are at least two factors influencing the blood, an early effect due to a depression of the respiratory centers, the retention of carbon dioxide in the blood, and a later one, resulting from the accumulation of lactic acid.

TABLE 5—Effect of Alcohol Ingestion on Carbon Dioxide Capacity and Carbon Dioxide Content, Volumes per Cent

Before	36.7	38.0
After ¼ hour	34.7	33.2
After ½ hour	32.4	36.1
After 1¼ hour	30.0	37.6

If sufficient carbon dioxide is eliminated through the lungs, the p_H should remain unaltered. On the other hand, if the volume of carbon dioxide liberated through the lungs is small in relation to the bicarbonate content of the blood and the fraction $\frac{CO_2}{NaHCO_3}$ increases in the blood, then there is a relative retention of carbon dioxide, the p_H decreases and an acidosis supervenes.

Determination of the p_H or hydrogen ion concentration of the blood seemed important. This was done in some instances by the colorimetric method of Hastings and Sendroy,² but most of the results were obtained by means of the glass electrode.³ A fall in p_H was observed in five of eight determinations made colorimetrically and in all six cases studied electrometrically. The p_H of one of the human subjects fell from 7.35 to 7.30 (table 6). Observations on the dog revealed a change in p_H greater than that in man, for the animal received a larger dose more rapidly by the stomach tube. This change occurred with great rapidity. In one case the p_H had diminished from 7.41 to 7.29 a quarter of an hour after the ingestion of alcohol, an hour later it had fallen to 7.22. It did not return to normal until the next day. The changes in p_H vary with those of the concentration of alcohol in the blood, the greatest fall in p_H occurring at the time when the

TABLE 6—Effect of Alcohol Ingestion on p_H of Whole Blood of Human Subject

	Before	After		
p_H	7.35	1 Hr	2 Hr	7 Hr
		7.30	7.31	7.35

concentration of alcohol in the blood is largest (table 7). The early rapid fall in p_H is probably due to inadequate pulmonary ventilation, for there is an accompanying increase in carbon dioxide content and no rise of lactic acid. On the other hand, as the alcohol content of the blood diminishes, its narcotic effect on the respiratory center also decreases and the p_H returns to normal despite the increased concentration of lactic acid. With the exception of the relative retention of carbon dioxide and the production of lactic acid, no other acid could be identified during the oxidation of alcohol. No trace of acetic acid could be detected in the blood even by the delicate lanthanum nitrate test of Kruger and Tschirch.⁴ Alcohol itself does not change

TABLE 7—Effect of Alcohol Ingestion on p_H and Alcohol Content of Whole Blood of Dog

	Before	After				
p_H	7.41	¼ Hr	1 Hr	2 Hr	7 Hr	24 Hr
		7.29	7.22	7.28	7.31	7.41
Alcohol, mg per 100 cc	0.0	2.74	4.10	3.35	2.71	0.0

the p_H of the blood in vitro. A few determinations revealed no change in the total base or chloride content of the serum.

The entire picture produced by the ingestion of these large doses of alcohol may therefore be due to the narcotic action of this substance. The increase of blood dextrose and lactic acid occurs as a result of the action of alcohol on liver and muscle glycogen respectively, and the fall in p_H is due to the depression of the respiratory centers. This conception of the action of alcohol is not incompatible with the fact that alcohol in moderate doses may increase the respiratory volume and the metabolic rate. A distinction must be made between the primary and secondary effects of alcohol.

² Hastings, A. B. and Sendroy, Julius, Jr. J. Biol. Chem. **61**, 695 (Oct.) 1924.
³ Du Bois, Delafield. Science **76**, 441-443 (Nov. 11) 1932.
⁴ Krüger, D., and Tschirch, E. T. Mikrochemie **8**, 337-338, 1930.

Two of the primary effects of alcohol ingestion are a diminution in p_H and an accumulation of lactic acid in the blood. The presence of lactic acid is a stimulant to respiration and oxidation. Therefore, there is secondarily an increase in respiratory ventilation. However, not until all the alcohol in the body has been removed by oxidation is this increase in respiration sufficient to cause the p_H to return to its normal value.

From the clinical point of view it is well to remember that alcohol may be contraindicated when an acidosis already exists.

TABLE 8—Lactic Acid Content (Mg per Hundred Cubic Centimeters) of Arterial Blood of Patients Recovered from Alcoholic Coma

Blood Drawn	Patients				
	1	2	3	4	5
Within 24 hours after recovery	30	27	28	34	37 (4th day)
Within 72 hours after recovery	16	21	24	16 (6th day)	18 (10th day)

LACTIC ACID AND THE AFTER-EFFECTS OF ALCOHOL

After a prolonged alcohol debauch the lactic acid disappears slowly from the blood. There is only a gradual restitution of the original conditions. Nine individuals who had been drinking for several days had increased concentrations of lactic acid which endured, in one case, for several days. Table 8 shows the concentration of lactic acid in five patients. The high level of lactic acid after recovery from alcoholic coma is evident. In four cases the concentration of lactic acid was increased on the first day after admission and returned to normal resting values by the third day. The fifth patient still had an increased concentration of lactic acid four days after the ingestion of alcohol, on the tenth day lactic acid had returned to its resting value. Perhaps it is such changes that are responsible

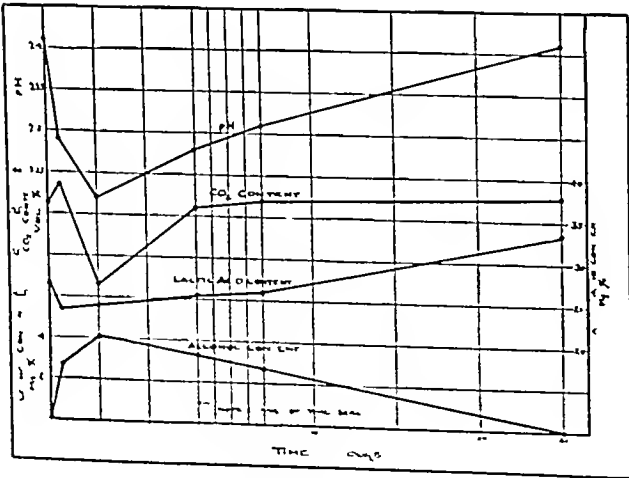


Chart 1—Effect of alcohol ingestion on pH, carbon dioxide, lactic acid and alcohol contents of whole blood (experiment of Feb. 4-5, 1932)

for the so-called hangover after an alcohol debauch. It may be that the long continued high level of lactic acid explains in part the prolonged incapacity resulting from the ingestion of large amounts of alcohol. Two patients who were apparently well and not suffering from a hangover on the morning after their admission to the hospital were observed to have normal

lactic acid values within twenty-four hours of their admission.

THE OXIDATION OF ALCOHOL BY THE BRAIN

The following experiments present new evidence of the manner in which the body disposes of ingested alcohol. Some alcohol is excreted through the breath

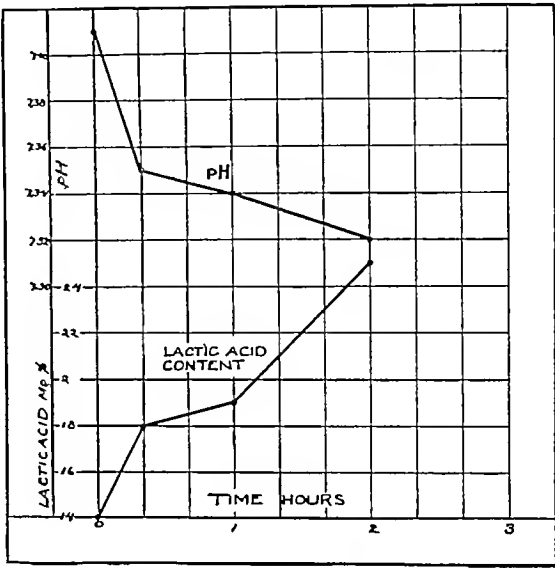


Chart 2—Effect of alcohol ingestion on pH and lactic acid content of whole blood (experiment of Feb. 1, 1932)

and the urine, but most of it is oxidized. Since some of the chief effects of alcohol are on the central nervous system, it seemed important to determine whether the cerebrum could oxidize alcohol. The rapid shifts in the acid-base equilibrium make it difficult to evaluate the significance of the respiratory quotients of the brain of the living animal. Hence, respiratory quotients of the excised cortex of the rat were determined in the Warburg apparatus. The respiratory quotient of the cortex was determined because it may be an indicator of the foodstuffs oxidized. The respiratory quotient, it may be recalled, is the ratio between the volume of carbon dioxide produced during the oxidation of any substance and the volume of oxygen consumed in the

TABLE 9—Effect of Intraperitoneal Injection of 50 cc of 19 Per Cent Alcohol Per Kilogram of Rat on Respiratory Quotient

Respiratory Quotient of Excised Cortex of Rat				
Untreated		Alcoholic		
0.98	1.01	0.60	0.60	0.59
				0.51

process. The cerebral cortex is especially suitable for such a study, since it oxidizes carbohydrate, probably after conversion to lactic acid, as a source of energy. The respiratory quotient of carbohydrate and lactic acid is unity, in marked contrast to that of alcohol, which is 0.67. Thus, a clear differentiation may be made between the exclusive oxidation of lactic acid and of alcohol. The intermediate quotients observed in these experiments indicate that both alcohol and lactic acid are oxidized simultaneously (table 9). Thus, the cerebral cortex, like the body as a whole, may derive energy from the oxidation of alcohol. The presence of alcohol undoubtedly interferes with the normal functions of the central nervous system. The oxidation of alcohol by the body and particularly by the

cortex, an organ which usually oxidizes only lactic acid, may act as a protective device to rid the brain of a toxic substance

CONCLUSIONS

The ingestion of 10 cc of 19 per cent alcohol per kilogram of body weight by human subjects and of 50 cc per kilogram of body weight by dogs is followed by an acidosis. This acidosis is probably the result of two factors: a relative retention of carbon dioxide and the accumulation of lactic acid. The alkali reserve of the body is diminished because of this accumulation of lactic acid.

In patients suffering from the after-effects of over-indulgence in alcohol—the so-called hangover—there was an increased content of lactic acid in the arterial blood.

The brain, which usually derives its energy from the oxidation of carbohydrate, may nevertheless also oxidize alcohol.

333 Cedar Street

THE FILAMENT-NONFILAMENT COUNT IN CHRONIC ARTHRITIS

AN AID IN THE DIFFERENTIATION OF RHEUMATOID
ARTHRITIS AND OSTEO-ARTHRITIS

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AND

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In our studies of the chronic rheumatic diseases we have resorted to various aids to facilitate the diagnosis and differentiation of chronic rheumatoid arthritis and osteo-arthritis. Because infection is considered the etiologic factor in some forms of these diseases, we have for some time sought diagnostic assistance from the study of the blood picture.

The total white count and the conventional differential count are not sufficiently enlightening in chronic arthritis.¹ In the study of acute infections, Schilling's

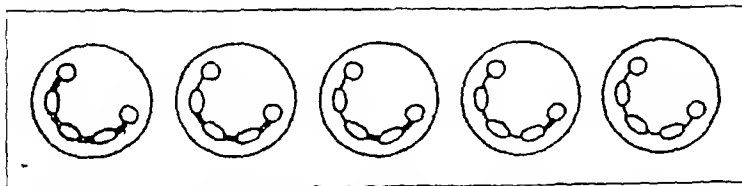


Fig 1—Cooke and Ponder's scheme illustrating Cooke's criterion: "If there is any band of nuclear material connecting the different parts of a nucleus that nucleus for the purposes of the count cannot be said to be divided."

modification² of the Arneht count has received widespread approval. In many chronic infections, however, particularly in the chronic rheumatic diseases, the procedure still has to demonstrate its value. Schilling³ states that "in rheumatoid conditions only slight changes in the hemogram are found." No extensive hemogram studies, outside of a few sporadic case reports,⁴ have

appeared in the literature of chronic arthritis until the recent study of Eaton.⁴ He reported 250 cases of chronic nontuberculous arthritis in which the Schilling hemogram showed a nuclear shift to the left, i.e., evidence of septic stimulation, in 90.4 per cent of the patients. He did not differentiate, however, in this series between rheumatoid arthritis and osteo-arthritis.

Without disparaging the value of the Schilling count for thorough, serial, diagnostic and prognostic blood studies, many workers have found it too cumbersome for routine use. This objection has led to a progressive simplification of Schilling's methods, notably by Pons and Krumbhaar⁵ here, and by Piney⁶ and Cooke and Ponder⁷ abroad. The most recent modification was the

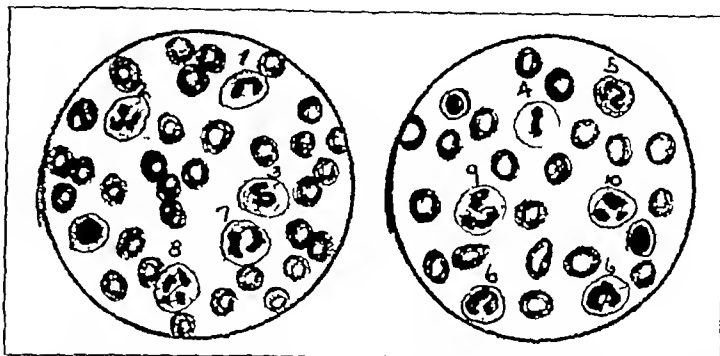


Fig 2—Types of nonfilament neutrophils, 16; types of filament neutrophils, 7.

filament-nonfilament count advocated by Farley, St. Clair and Reisinger.⁸ The method involves a slight but fundamental change in Cooke and Ponder's classification of neutrophils. It appears to differ only in name from the classification described in 1927 by Roberts⁹ in his "lobulated and nonlobulated cell" count.

The filament-nonfilament count is a simple method of neutrophil study based on the changes advocated by the various authors mentioned. It is offered as a routine method of obtaining information from the neutrophilic leukocytes, unattended by the complexity of the Arneht and Schilling hemograms yet retaining their value as an index of toxic or infectious states.

The neutrophils are divided by this procedure, according to their age, into two classes. The first, or nonfilament group, consists of the young neutrophils in which the nucleus is unsegmented, or, if segmented, the nuclear parts are still joined by thick portions of nuclear material. The second, or filament, group consists of those neutrophils in which a fine filament of chromatin material connects two or more segments of the nucleus, i.e., the true polymorphonuclear cells. The distinction made by Farley and his associates is based on the dictum of Cooke and Ponder, "If there is any band of nuclear material except a fine filament of nuclear material connecting the different parts of a nucleus, that nucleus for the purposes of the count cannot be said to be divided."

4 Eaton, E. R. Chronic Arthritis. A Report Based on the Study of the Blood Cell Count in 250 Cases, *J. Am. Inst. Homeop.* 25: 125-136 (Feb.) 1932.

5 Pons, C. A., and Krumbhaar, E. B. Studies in Blood Cell Morphology Function, *J. Lab. & Clin. Med.* 10: 123-126 (Nov.) 1924.

6 Piney, Alfred. Diseases of the Blood, Philadelphia: P. Blakiston Son & Co. 1928.

7 Cooke, W. E., and Ponder, Eric. The Polynuclear Count. The Nucleus of the Neutrophil Polymorphonuclear Leukocyte in Health and Disease with Some Observations on the Macropolycyte, Philadelphia: J. B. Lippincott Company 1927.

8 Farley, D. L., St. Clair, Huston, and Reisinger, J. A. Normal Filament and Nonfilament Polymorphonuclear Neutrophil Count Its Practical Value as Diagnostic Aid, *Am. J. M. Sc.* 180: 336-344 (Sept.) 1930.

9 Roberts, Kingsley. Preliminary Report of Modified Method of Blood Counting for Determination of Inflammatory Conditions, *Am. J. Surg.* 3: 223-231 (Sept.) 1927.

From the Arthritis Clinic New York Post Graduate Medical School and Hospital.

1 Pemberton, Ralph. Arthritis and Rheumatoid Conditions. Philadelphia: Lea & Febiger 1929, p. 48.

2 Schilling, Victor. The Blood Picture, ed. 7 and 8. St. Louis: C. V. Mosby Company, 1929, pp. 148, 321, 320.

3 Schilling, Piney, Alfred. Recent Advances in Hematology, ed. 3, Philadelphia: P. Blakiston Son & Co. p. 241. Gerard, J. H., and Boerner, Fred. Significance of Shift to Left in Differential Leukocyte Counts and Nuclear Index as Means for Interpreting and Recording of Nuclear Index of Normal Blood and Influence of Age, *J. Lab. & Clin. Med.* 16: 306-310 (Dec.) 1930.

As a basis for any further studies, Farley, St Clair and Reisinger determined the normal filament-nonfilament count in 100 patients of their own series and recalculated the count in 90 normal persons previously reported by Cooke and Ponder. This work establishes the normal nonfilament count at 16 per cent or below and averaging from 8 to 9.8 per cent. Roberts, in a series of 117 normal persons, found the nonlobulated cells, which correspond to the nonfilament cells, constituting 25 per cent of the neutrophils. Using 65 per cent as the normal percentage of neutrophils in a differential count, he brought his figures to exactly 16 per cent in a count of 100 leukocytes of all types. Mullin and Large,¹⁰ in a series of acute infections, found the nonfilament count an effective diagnostic and prognostic aid. In seven chronic arthritis patients mentioned, they found a suggestive elevation of the nonfilament cells in those with infectious arthritis.

OBJECT

Our aim in this study was to determine whether, by routine filament-nonfilament counts, we could differentiate rheumatoid arthritis from osteo-arthritis. From November, 1931, to September, 1932, we took routine blood smears from all afebrile patients admitted to our arthritis clinic. From this group, in the order admitted, we selected fifty cases each of chronic rheumatoid arthritis and osteo-arthritis, diagnosed by other methods, for a comparison of their nonfilament counts. The accompanying table gives the results.

Nonfilament Counts

Case	Rheumatoid Arthritis	Osteo-Arthritis	Case	Rheumatoid Arthritis	Osteo-Arthritis
1	33	12	26	32	22
2	27	27	27	26	10
3	32	9	28	33	14
4	23	18	29	30	17
5	23	7	30	31	22
6	23	13	31	34	14
7	30	21	32	22	20
8	20	21	33	27	17
9	23	20	34	26	12
10	1	20	35	46	22
11	1	26	36	41	24
12	27	14	37	28	30
13	41	11	38	18	9
14	23	13	39	27	21
15	31	1	40	29	21
16	23	17	41	32	24
17	22	12	42	31	22
18	4	7	43	40	22
19	33	13	44	41	21
20	41	17	45	30	14
21	47	10	46	34	15
22	26	9	47	23	14
23	33	20	48	37	14
24	47	14	49	29	14
25	33	12	50	33	32

METHODS

The method of blood examination followed the criterion of Cooke and Ponder. McNeill's polychrome stain was used but the ordinary Wright stain was also found satisfactory. Thin uniform smears on scrupulously clean slides proved reliable. A total differential count of 100 cells was done on each slide. Most of the counts were performed by two different workers, and each of these nonfilament counts, when checked, showed a variation of only 1 to 3 per cent. The blood smears were taken at the same time of day. Repeated counts were done in a majority of the cases but are not

considered a part of this study. Total leukocyte counts were not done, because we did not think they would add sufficient information to warrant the additional labor. We found that any one familiar with blood cytology could acquire the necessary technic with a little practice. Borderline cells, difficult to classify, occur rarely enough to be negligible.

RESULTS

The nonfilament count was found above normal in 100 per cent of the chronic rheumatoid patients. In twenty-six patients, or 52 per cent of the osteo-arthritic patients, the count was normal. The average nonfilament count in the rheumatoid patients was 31.5 per cent, while in osteo-arthritic patients with an abnormal count the nonfilament cells averaged 22.3 per cent.

COMMENT

Whether osteo-arthritis and rheumatoid arthritis are different disease entities, distinguished by the presence or absence of an infectious process, is a problem that we will not consider here. Our purpose in this study is to report the observations in a selected group of patients of each type. If chronic infection is a factor, one may reasonably expect some blood reaction in response to the mild but persistent "stimulus exerted by the pathological process."¹¹ The uniform elevation in the rheumatoid group points to the presence of an infectious agent in this disease.

It is interesting to speculate on the explanation of the elevated count in approximately half of the patients with osteo-arthritis. The question arises at this point whether our present standards of differentiating this condition are adequate. Clinical study has led us to believe that a good proportion of this group represents the so-called mixed type of arthritis, osteo-arthritis with an associated rheumatoid disease. If this is true, it accounts for many of the elevated nonfilament counts in the osteo-arthritic group.

The remainder of the abnormal counts in the osteo-arthritic group may be due to associated focal infection. Our observation in a variety of cases has indicated that the filament-nonfilament count is an index to otherwise unrevealed sepsis. We have several times been led by a persistently high nonfilament count to reexamine a patient. In each instance an active focus was discovered which had previously been overlooked or unsuspected. We are now conducting further studies along these lines.

CONCLUSIONS

1 The filament-nonfilament count is a useful routine diagnostic aid in chronic arthritis.

2 Filament-nonfilament counts in fifty patients with rheumatoid or chronic infectious arthritis were abnormally elevated in 100 per cent of the patients.

3 The filament-nonfilament count was normal in twenty-six patients, or 52 per cent, of a group of osteo-arthritic patients, while in the rest of this group the count was elevated.

4 The average nonfilament count was much higher (31.5 per cent) in patients with rheumatoid arthritis than in osteo-arthritic patients with an abnormal count (22.3 per cent).

5 The filament-nonfilament count is helpful in differentiating rheumatoid arthritis from osteo-arthritis only when within normal limits. A normal count indicates that chronic rheumatoid infection is not present.

11. Hildreth J. A. The Clinical Interpretation of Blood Examinations. Philadelphia: Lea & Febiger, 1933.

ent An elevated count may indicate the presence of rheumatoid arthritis, mixed rheumatoid and osteoarthritis, or osteo-arthritis with active focal infection

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OBLITERATING SYPHILITIC ARTERITIS

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Obliteration of the larger arterial trunks when due to atheroma, arteriosclerosis or Buerger's disease is a fairly familiar clinical condition. Syphilitic obliteration of the larger vessels, however, would appear from the literature to be a fairly uncommon condition and is not seen often in clinical practice.

The case here reported initiated a search of the literature on the subject and while numerous reports were found of obliteration of the larger vessels as a result of arteriosclerosis and atheroma, the percentage of cases in which the obliteration was due to syphilis would suggest that our case represents a fairly rare condition, or at least one that escapes clinical notice. Encroachment on, and at times complete obliteration of, the orifices of coronaries are frequently seen at postmortem as the result of syphilis of the aorta. However, the larger vessels which leave the aorta are apparently but rarely involved by the syphilitic process in the aortic wall to the extent of encroaching on their lumen. Gurd and Wade¹ discussed syphilitic intimal arteritis from simple proliferation of the intima, but no occlusion of large trunks is reported by them. Darling and Clark² collected six cases of occlusion of large vessels, including the carotid, innominate, subclavian, renal and mesenteric arteries, and their conclusions were that 37 per cent of syphilitic cadavers at autopsy show some occlusive lesions. Other authors report oblitative lesions of the larger vessels, the majority of them being due to arteriosclerotic and atheromatous lesions. The only case in the literature which seems at all identical with the one reported here was one reported by Preisdorfer³ in 1878, in which the obliteration of the vessels was identical in character and location with ours, but which was complicated by aneurysm, which was absent in our case.

REPORT OF CASE

A white woman, aged 29, was admitted to the Baptist Hospital with the complaint of marked dyspnea, smothering spells, edema of the feet and legs, and lately abdominal swelling. The onset of symptoms was insidious, and they became pronounced about four weeks before admission. The past history was essentially negative, except for attacks of tonsillitis in childhood and early youth and recurring spells of fairly severe acute arthritis, chiefly in the knee and wrist joints, over a period of two or three years, terminating about seven years previously. Physical examination showed essentially a patient who was markedly dyspneic and was obviously in advanced heart failure. Edema of the extremities and dependent portions was marked and much ascites was present with free fluid in the right side of the chest. Except for the observations referable to the heart and peripheral circulation, physical examination showed nothing of particular interest. Examination

of the heart showed classic signs of aortic insufficiency with the typical diastolic murmur being present. Except for the following unusual features, the patient presented a typical example of the usual case of aortic insufficiency encountered in routine hospital practice. There was marked pulsation of the vessels of the neck on the right side, with a Corrigan pulse at the right wrist, and in the right arm the blood pressure was 170 systolic, 0 diastolic. The left side of the neck showed no arterial pulsation, the pulse was well sustained at the left wrist, there was no capillary pulsation in the left upper extremity, and the blood pressure was 95 systolic, 70 diastolic in the left arm. Capillary pulsation was present in both lower extremities when elevated above the level of the heart, and Duroziez's sign was positive in both femoral arteries. A teleroentgenogram of the chest showed no evidences of aneurysm, and the appearance of the heart shadow was that which is usual in advanced heart failure with aortic insufficiency. The electrocardiogram was in keeping with the clinical observations and showed nothing remarkable. A blood Wassermann test obtained before death was reported positive after the autopsy.

The patient died about twenty-four hours after admission to the hospital and the autopsy showed nothing of especial interest except the changes in the aorta, which were typical of syphilitic aortitis with aortic valve insufficiency. Of special interest, however, was the almost complete obliteration of the orifices of the subclavian and left carotid arteries as a result of the proliferative syphilitic process in the aortic wall. The opening into these vessels would not much more than accommodate the shaft of a small pin, which easily explained the blood pressure in the left arm in contrast to the classic pressure of aortic insufficiency in the right arm. The small orifices of the two larger vessels exerted a valvelike action and allowed blood to flow into these vessels only slowly and, when they were filled, sustained pulse and blood pressure by preventing a sudden reflux back into the lumen of the aorta. Sections of tissue taken from the aorta around the orifices of these vessels showed microscopically typical syphilitic mesaortitis and proliferation of the intima, which had encroached on the mouths of the vessels. Special staining methods showed enormous numbers of *Spirochaeta pallida* in the aortic wall.

COMMENT

The age and sex of the patient and the unusual clinical observations, particularly the discrepancy in blood pressure between the two arms, would appear to make this case of sufficient interest to warrant reporting. This would seem to be still more true, since nothing can be found in the literature regarding obliteration of isolated large vessels from any cause since 1925.

Such isolated oblitative lesions should probably be considered clinically and sought for more diligently at autopsy than has apparently been the custom in the past, since they can easily explain unusual and at times vague signs and symptoms for which no basis can be found clinically. Oblitative lesions of the carotid from atheroma and thrombosis resulting in cerebral and other neurologic manifestations are reported.⁴ It is conceivable that similar processes, whether from syphilitic lesions or other conditions, could easily cause vague visceral disturbances, such as unexplained abdominal symptoms. Syphilitic involvement of the pulmonary vessels in the form of Ayerza's disease is being recognized clinically and reported with greater frequency. It is entirely possible that instances of oblitative vascular lesions causing other clinical manifestations will be reported with greater frequency as such conditions are more frequently brought to our notice and autopsies more regularly and more thoroughly done.

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¹ Gurd, F. D., and Wade, H. W. *J. M. Research* 25: 85, 1911.

² Darling, T., and Clark, C. *I. M. Research* 32: 1, 1915.

³ Preisdorfer, P. *Virchows Arch. f. path. Anat.*, 1878, p. 73.

⁴ Hunt, J. R. *Am. J. M. Sc.* 165: 704, 1914.

Clinical Notes, Suggestions and New Instruments

THE USE OF CORTIN IN A CASE OF ACUTE HYPOSUPRARENALISM OCCURRING AS A SEQUELA OF ACUTE STREPTOCOCCIC SORE THROAT

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History—A woman, aged 25, on the afternoon of April 7, began to have symptoms of general malaise, aching pains throughout the body, headache and slightly sore throat. There was no cough or expectoration, nor were there symptoms referable to the central nervous, cardiovascular, gastro-intestinal or genito-urinary systems. The patient had made a complete recovery three days previously from an attack of acute appendicitis, without operation.

Examination—Physical examination revealed the following pertinent points. The patient was well developed and well nourished. The temperature was 99.6 F, pulse 90, respiration rate 20. The mucous membrane of the nasal cavity was inflamed and congested, the tongue coated, the pharynx inflamed. The tonsils were inflamed and enlarged. There was no rigidity and no abnormal pulsations in the neck, there were a few enlarged cervical lymph nodes. The chest was well developed, the expansion was good and equal, the resonance was normal throughout, the breath sounds were normal, there were no rales. The heart was of normal size and position, with no thrills or murmurs. The abdomen was soft, with no tenderness or rigidity and no masses. The neuromuscular reflexes were normal, there were no paralyses. Symptomatic treatment such as a gargle and salicylates was advised.

At 10 p.m. the patient was seen again. At this time the temperature was 104.6, pulse 120, respiration rate 24. She was extremely toxic. There was inflammation and edema of the pharynx with a beginning membrane formation over the left tonsil. The heart, lungs and abdomen showed no pathologic condition at examination. The diagnosis was quite obviously acute streptococcic sore throat. A smear and culture taken from the nose and throat at this time was negative for diphtheria but showed a heavy growth of streptococci. The patient was put under the care of a competent trained nurse.

Course—April 8, the patient was extremely toxic, with a temperature of 104, pulse of 124 and respiration rate of 30. There was an extensive membrane on the left tonsil with deep friable ulcers in the surface of the tonsil. The entire pharynx was edematous and inflamed. The nasal mucous membrane was inflamed and congested. The heart and lungs showed no pathologic changes. The blood pressure was 114 systolic, 76 diastolic. The blood count revealed hemoglobin 70 per cent, red blood cells 3,800,000, white blood cells 23,000, with 97 per cent of polymorphonuclear leukocytes. The urine showed a trace of albumin, there were no casts, pus or red blood cells.

April 10, the temperature still remained above 104, the pulse was from 110 to 120, the respiration rate from 26 to 30. The patient remained extremely toxic. The heart and lungs presented no pathologic changes. The blood pressure was 110 systolic, 70 diastolic. The pharynx was less edematous and the patient was able to swallow with more comfort. An erythematous rash much like that of scarlet fever had developed but there were petechial hemorrhages scattered over the surface of the body, especially where there were folds or creases in the skin. Movement of almost any joint in the body caused excruciating pain. Examination of the joints revealed tenderness but no swelling or inflammation.

April 11, the temperature was between 101.6 and 103 and the pulse from 100 to 110. The blood pressure was 114 systolic, 78 diastolic. The pharynx both objectively and subjectively was very much improved. The joint pains and rash remained about the same. The urine was loaded with albumin, pus and red blood cells and it contained many granular casts. Chemical examination of the blood revealed nonprotein nitrogen 75 mg. per hundred cubic centimeters of blood, white blood cell 32,000 with 68 per cent of polymorphonuclear leukocytes.

April 12, the patient's temperature registered between 101 and 102, the pulse was from 90 to 100. The pharynx and tonsils were greatly improved. The rash was fading and the skin peeling. The pain on movement of the joints was much improved, with the exception of the right shoulder. The urine was still loaded with albumin, pus, red blood cells and granular casts. There was no edema or shortness of breath. However, the patient complained of being extremely weak, she was nauseated and had aching pains in the loins. The blood pressure was being watched closely because of the apparent kidney involvement. The morning reading was 65 systolic, 45 diastolic.

April 13, the patient was irrational and showed signs of mental depression. She was continually nauseated, and the vomiting was profuse. There was extreme exhaustion, she was unable to lift her arm off of the bed, or her head from the pillow. There were severe aching pains in the lower part of the back and the hips. There was no desire for food of any kind. The temperature ranged between 98.6 and 99.8. The joint pains had entirely disappeared except for the right shoulder. The tonsils and pharynx were normal. The urine showed a trace of albumin, with an occasional hyaline cast, no pus, no red blood cells and no granular casts. The blood pressure was 55 systolic, 35 diastolic. The Muirhead treatment for suprarenal insufficiency was started. The blood pressure could be brought to 80 systolic immediately after the hypodermic injection of 15 mm of 1,000 epinephrine hydrochloride.

April 14, the blood pressure readings were between 60 and 80 systolic. There was marked anorexia and extreme nausea and vomiting. The patient was becoming very much dehydrated. There was marked exhaustion and severe mental depression. There was severe pain in the loins. Small amounts of highly concentrated urine were obtained by catheter. Urinalysis revealed specific gravity, 1.042, no albumin, no pus, no red blood cells and no casts. I communicated with Dr. Hartman of the University of Buffalo Medical School in an effort to obtain a supply of cortin for clinical use.

April 15, the patient's condition was very grave, and little hope was held for recovery from the moribund state which she had reached. The blood pressure could not be brought above 60 systolic, in spite of seven ampules of 1,000 epinephrine hydrochloride given hypodermically in addition to the ordinary Muirhead treatment.

April 16, the condition was practically the same as the day before. The blood pressure was 60 systolic, 40 diastolic. The patient could be roused only with difficulty from her lethargic condition. At 10 a.m., 70 cc. of cortin arrived from Dr. Hartman's laboratory. The patient was given 5 cc. subcutaneously every six hours for the first twenty-four hours. Following the second dose of cortin the patient's blood pressure had risen to 110 systolic, 70 diastolic. Her mental condition had changed entirely in the course of a few hours. She was hopeful instead of depressed. Nausea had entirely disappeared and she took large amounts of fluids by mouth. She mentioned hunger for the first time in several days.

April 17, the patient's general condition was improving rapidly. The temperature was 98.6, pulse 84, systolic blood pressure from 100 to 114. There was no nausea or vomiting, and the appetite was good. Pain in the lower part of the back had entirely disappeared. Cortin 5 cc., was given twice a day.

April 18, the patient's condition was so good that she wanted to get out of bed. The blood pressure was from 110 to 120 systolic and from 70 to 80 diastolic.

April 22, subjectively and objectively the patient was very much improved. All local signs of infection had disappeared. Nonprotein nitrogen was 32 mg. per hundred cubic centimeters of blood. The urine showed no albumin, pus, red blood cells or casts. The last dose of cortin was administered. The patient's condition was sufficiently improved to enable her to travel about 50 miles to her home, by train. Before the development of this illness the patient weighed about 115 pounds (52 Kg.). Her estimated weight at the time she left for her home was approximately 90 pounds (41 Kg.).

May 4, the patient found that she tired easily but that she was gaining strength slowly. The blood pressure was 114 systolic, 70 diastolic. The blood count was hemoglobin 85 per cent, white blood cells 7,200 with 65 per cent of polymorphonuclear. The urine was negative for albumin, pus, red blood cells and cast. Her weight was 90 pounds (43.5 Kg.).

June 6, the patient was still weak but had gained sufficient strength to do part time work. Her weight was 104 pounds (47 Kg). The blood pressure was 118 systolic, 76 diastolic. The patient was losing the hair from her scalp, and she was also losing her finger and toe nails. The urine was negative for albumin, pus, red blood cells and casts. Hemoglobin was 90 per cent, white blood cells 7,500.

June 15, the patient's general condition was very good. She was doing full time work and able to play tennis and golf. Her hair and finger nails were coming in normally. Her weight was 110 pounds (50 Kg). The blood pressure was 118 systolic, 78 diastolic.

July 25, the patient's condition was very good. She weighed 112 pounds (51 Kg). The blood pressure was 122 systolic, 84 diastolic.

Summary—A case of acute streptococcic sore throat had the following complications in the order of their occurrence: first, a severe toxic joint manifestation characterized by severe pain on movement with no signs of inflammation or swelling; second, a severe scarlatiniform toxic rash with many petechial hemorrhages; third, a marked toxic nephrosis characterized by albumin, pus, red blood cells and granular casts in the urine, with a retention of nonprotein nitrogen of 75 mg per hundred cubic centimeters of blood; fourth, definite damage to the suprarenal cortex, as evidenced by the low blood pressure, anorexia, nausea and vomiting, loss of weight of 20 pounds (9 Kg), characteristic pain in the loins, mental depression, definite temporary mental changes, extreme weakness and exhaustion.

COMMENT

"Apart from the lesions of Addison's disease and neoplasms, the adrenals are not often the seat of disease of clinical interest." This quotation, from Steven's Practice of Medicine, portrays the general concept of the medical profession in relation to the involvement of the suprarenal glands as a result of acute infectious diseases. There are three pairs of suprarenal arteries: a superior from the inferior phrenic, a middle from the aorta, and an inferior from the renal. Thus, this small gland weighing about 7 Gm, has three well developed arteries and consequently a very rich blood supply. The kidneys are frequently involved, by way of the blood stream, secondary to acute infectious diseases or foci of infection, both seriously, in the form of acute nephritis which frequently eventuates in chronic nephritis, and less seriously, in the form of acute nephroses. One of the three blood vessels of the suprarenal gland is a branch of the renal artery, so that any toxins or bacteria which reach the kidney and cause damage there have an equal opportunity to pass through the suprarenal glands. There is no basic reason for believing that the tissue of the suprarenal glands is more resistant to infections and toxemias than any other gland in the body. Degenerative changes such as cloudy swelling and fatty degeneration do occur in the suprarenal tissue. These considerations make me believe that many of the symptoms, such as weakness, exhaustion, pain in the back, gastro-intestinal disturbances, slow convalescence and loss of weight, which often occur in association with acute infectious diseases, may be due in part to unrecognized suprarenal insufficiencies.

The use of cortical extract has not been satisfactory in the treatment of typical Addison's disease, when there is an extensive and permanent damage to the suprarenal glands consequent on tuberculosis or malignant disease. This is, in a large measure, due to the fact that the therapy is merely replacement in nature, since the pathologic changes involving the gland are usually permanent and progressive.

The results of treatment with cortical extract of the case reported and those typical cases of Addison's disease differed in only two respects. First the blood pressure in the case reported returned to normal limits and has been maintained there; second, the patient has required no treatment for several months and has steadily improved. For these reasons and because the kidney complications cleared up so promptly, I feel that the damage to the suprarenal glands was toxic and temporary, and that no permanent pathologic condition has resulted.

What is chronic hyposuprarenalism? I have come to the conclusion that there is a large group of patients who are suffering from chronic hyposuprarenalism. They complain of

a characteristic group of symptoms such as lowered blood pressure, lack of energy and ambition, rapid fatigue on exertion, vague gastro-intestinal symptoms with no pathologic background, and mental depression. The usual diagnosis in these cases is neurocirculatory asthenia. I have been treating these patients with whole gland suprarenal substance with fairly encouraging results.

CONCLUSIONS

1 A case of acute hyposuprarenalism occurred as a complication of acute streptococcic sore throat.

2 The results of treatment with cortin in this case were very satisfactory. (The cortin was obtained from Dr Hartman's laboratory in Buffalo.)

3 It is suggested that acute hyposuprarenalism may occur more often than is usually believed.

4 If chronic hyposuprarenalism is a definite entity, cortical extract may prove of extreme value in combating its distressing symptoms.

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A SECOND CASE OF GASTROINTESTINAL ALLERGY DUE TO INSULIN

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In 1930 I¹ reported a case of allergy due to insulin affecting the gastro-intestinal tract and producing severe symptoms. Briefly, a boy of 12 years, having had diabetes since the age of 7, began to have severe attacks of abdominal pain, nausea and vomiting. These were so severe in each instance as to precipitate coma. After a short stay in the hospital, with treatment consisting of free intravenous infusions of salt solution and dextrose, the child would return home, to repeat the experience when his usual diet and insulin therapy were resumed. Several such attacks occurred. In the last one, while the patient was moribund, the possibility of an insulin allergic reaction was considered. A change from an insulin of pork to one of beef origin was made. The patient obtained immediate and permanent relief and has been well since, after an interval of three years. The case was studied carefully from both allergic and clinical points of view, and the conclusions were correct beyond question.

Allen² of the Mayo Clinic reviewed the conclusion that I arrived at in this case and suggested that the phenomenon might be due to acidosis. In reply it may be said that there is no similarity between the picture presented by this child and the pain that supervenes in diabetes. It is well known that in the profound acidosis which precedes coma, for a few minutes, and for rarely more than an hour, a severe pain in the epigastric region may occur. As the coma develops, the pain disappears. This phenomenon is often mistaken for appendicitis, gallbladder disease or pneumonia, and more than one diabetic patient has been operated on because of it. Its cause has been ascribed to irritation of the phrenic nerve. Be that as it may, the picture of the profound gastro-intestinal disturbance extending over a period of several months as presented by this boy is an entirely different phenomenon.

I have seen another case quite similar in character. The proof was established by positive tests. The patient, a married woman, aged 52, gave a history of diabetes extending over a period of six years, during which she had taken insulin constantly.

In September, 1931, she began to have a gastro-intestinal disturbance, which was characterized by cramps followed by frequent bowel movements. She would have four or five stools during the day, with none during the night. In December, 1931, she noticed a slight edema of the upper eyelid. Repeated physical examinations of the abdomen revealed no evidence of organic lesion. The phenomenon occurred almost daily for the succeeding nine months and did not yield to medication or dietary regulation. In January, 1932, a roentgen study was made by Dr. John A. Bennett of Elmira, N. Y. This examination revealed no evidence of disease in the chest. There was a

From the Highland Hospital.
1 Williams, J. R. Allergic Insulin Reactions, J. A. M. A. 94:1112 (April 12) 1930.
2 Allen, F. M. and Scherer, L. R. Insulin Allergy, Endocrinology 16:417 (July Aug.) 1932.

marked hyperperistalsis with rapid emptying of the entire gastro-intestinal tract, but no evidence of ulcer or new growth. The gastro-intestinal symptoms becoming more severe, surgical advice was sought and operative intervention was seriously contemplated.

Up to this time the patient had been using insulin of pork origin, but through an inadvertence was given an insulin derived from the beef. With this change, the gastro-intestinal symptoms immediately disappeared. Since that date, the patient has remained well. Skin tests for insulin sensitivity were made with pork and beef insulin. A marked reaction was elicited from the pork insulin, which persisted for more than twenty-four hours. The evidence of the test from the beef insulin completely disappeared in twenty minutes. The diagnosis was further confirmed by the fact that the intradermal test also caused a typical gastro-intestinal attack. Several days later a therapeutic dose of pork insulin produced the characteristic abdominal upset. Since the use of beef insulin, she has been entirely free from gastro-intestinal symptoms.

This second case is reported because, among the thousands of individuals who are now taking insulin hypodermically, cases of allergic reactions undoubtedly occur, which are now being overlooked. Since gastro-intestinal allergic reactions are so likely to be confused with the common organic lesions of the abdominal tract, such as appendicitis and gallbladder disease, physicians undertaking the care of diabetic patients should be on the lookout for this phenomenon and should rule it out before attempting surgery.

388 Monroe Avenue

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY OF THE AMERICAN MEDICAL ASSOCIATION HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORTS
H. A. CARTER, Secretary

AIRGARD VENTILATOR NOT ACCEPTABLE

The Aircard Ventilator and Filter (Model 30), designed to supply a variable quantity of filtered air to the average sized office or room, is manufactured by the American Air Filter Co., Inc., Louisville, Ky.

The Aircard is contained in a metal cabinet 24 inches wide, 9½ inches deep and 9 inches in height, and it can be installed easily in any window of the vertical sash type. All necessary parts and appurtenances for installation in this type of window are supplied by the manufacturer with each machine. In special sashes, such as factory type or French windows, special installation is necessary.

A relatively quiet and efficient electric motor is directly connected to a Sirocco type blower fan. Outside air is drawn in through a screened vent in the lower back portion of the machine and is conducted upward through a duct to the top of the apparatus where the cellulose filter is placed. After passing through the filter sheets the air is forced by the fan into a discharge duct. From the discharge duct the air passes into two circular openings which are protected by louvers that may be rotated through an angle of 360 degrees making it possible to direct the current of the incoming filtered air in various directions.

The Aircard is equipped with a recirculating feature. A damper closes the intake air duct. If this damper is shut and a series of apertures at the top of the device opened by a sliding shutter air is drawn through the holes directly from the room. Then it is filtered and re-discharged back into the room.

In extremely hot or cold weather it may be desirable to filter and recirculate the air in the room.

The speed of the motor designed for this unit can be regulated by a variable resistance controlled by a knob on the outside of the machine. Current consumption is about 40 watts per hour. At the Chicago rate the Aircard will run approximately ten hours for four cents.

By the use of the variable speed control the quantity of filtered air may be varied from approximately 60 cubic feet per minute minimum to over 160 cubic feet per minute maximum (with one filter sheet).

The manufacturer claims that this filtering medium is 97 per cent efficient when only one filter sheet is used. The filtering efficiency of the machine is increased by using two or three sheets at one time, but the air capacity is reduced. Filter sheets are changed easily by simply raising the cover of the machine, lifting out the retaining grill, and removing the old sheet. A fresh filter sheet is laid in, care being taken that all edges are tightly held down by the retaining grill, as the filter sheet is apt to be dislodged.

Standard equipment includes one dozen filter sheets. Renewal filters may be purchased at the price of \$1.50 per carton of twenty-four oil charged sheets.

When the Aircard is used in the treatment of hay fever and asthma, a few precautions are necessary. The company recommends that two or three filter sheets be used at a time. However, it is to be remembered that the volume of air flow per minute is reduced when more filter sheets are added.

In a Council test covering a period of seven days, the pollen filtering efficiency of the Aircard was tested. Each day of twenty-four hours, two petroleum coated slides were exposed about one inch from the louvers at an angle slightly less of being perpendicular to the blast of incoming air. The investigation proved that very little ragweed pollen passed through the filter (three sheets). Slides for each day were submitted to two specialists in the field, who counted the pollen granules.

The volume of air was measured by means of a Tycos anemometer. The committee investigating the device is aware that some authorities believe a Pitot tube is a more accurate instrument than the anemometer to use for this determination. If a Pitot tube had been employed, it is probable that the recorded volume of air displaced would be slightly higher. Nevertheless, the committee believes that the observations herein recorded are relatively accurate.

If the Aircard is installed in a small office or bedroom, the Council believes that the unit will supply a sufficient volume of filtered air for a person suffering from hay fever. On hot sultry days, however, in order to secure comfort in the closed room, a fan may be necessary to keep the filtered air in constant circulation. All clinical evidence coming to the attention of the Council indicates conclusively that patients are relieved only when they remain in a filtered atmosphere. Evidence that a hay fever patient will obtain relief for the entire day by merely remaining in a filtered air room for eight hours more or less is lacking.

The Council reports the Aircard unacceptable because of the objectionable character of the advertising matter. The manufacturer being told that the pamphlet 'Clean Air and Quiet for the City Dweller' was unacceptable to the Council, informed

Results of Tests

Date	8/27	8/28	8/29	8/30	8/31	9/1	9/2
Aircard (average of two observers)	4	3	11	5	16	3	2
Outdoor air	552	271	389	461	323	77	183
Humidity	84		86	82	82	65	73
Wind direction	N W		S W	S W	S	N E	N E
Temperature		66	85	85	82	70	72
Air displacement (corrected for wind velocity)	1st day—3 new filter sheets—98 cu. ft. per min. 2d day—same 3 filter sheets—96 cu. ft. per min. With one filter sheet only—159 cu. ft. per min.						
Power	40 watts						

the Council that the use of the objectionable pamphlet had been discontinued. This decision was reiterated in the firm's letter of a later date.

The aforementioned objectionable pamphlet was replaced by a bulletin entitled 'Filtered Air in the Prophylaxis and Treatment of Allergic Diseases' and, in fairness to the manufacturer it must be said that the character of this advertising matter has been greatly improved. However, the Council found certain claims in the reading matter still objectionable and misleading for example suggesting unfiltered air as prolific causes of common colds and other ills, and interludes with digestion and prolific causes of deafness. The manufacturer should support these claims by conclusive scientific evidence. In the opinion of the Council, promotional literature containing claims of this kind constitutes an appeal to the public with arguments that are unscientific and may harmfully enhance a feeling of false security on the part of the public.

The Council on Physical Therapy believes that the Airdard will supply enough filtered air for a small office or bedroom occupied by two or three people and will serve as an adjunct in the relief of symptoms of hay fever. However, the Council declines to accept the apparatus for inclusion in its list of accepted devices because the firm makes claims in advertising matter not substantiated by acceptable scientific evidence.

SIMPLEX DIATHERMY MACHINE NOT ACCEPTABLE

The Simplex Diathermy Machine is manufactured by the Simplex Diathermy Company, 333 West Fifty-Second Street, New York City. It is a small diathermy machine that is advertised principally by radio and sold directly to the public. The instruction for its use is given largely by lay salesmen. The quarters now occupied by the Simplex Diathermy Company formerly housed the Therapeutic Institute, 333 West Fifty-Second Street, New York.

The Simplex Diathermy Machine was examined in the home of a patient who bought it from the Simplex Diathermy Company. It comes in a handy carrying case, size about 12 by 18 by 6 inches. The cord can be directly plugged into the alternating light circuit, but if the current supply is direct current, a rotary converter is furnished by the company at an additional expense. It weighs about twenty pounds.

A snap switch on the panel connects the machine with the main line. Regulation for modifying the strength of the current drawn from the line is missing. A two-section, four point spark gap, with a regulation cooling device is mounted on the panel of the machine. Each section of the spark gap can be separately regulated. There is no covering protection over the spark gap. Varying the opening of the two sections serves as the only regulation of the current intensity. A milliamper meter is not furnished with the machine. Presumably the person is told by the salesman that a meter is not necessary because he gets enough current as long as he feels a comfortable heat under the plate.

Two outlets on the panel are marked "patient's circuit". Conducting cords and the usual blocked tin electrodes are furnished, and patients are instructed by the salesmen where and how to apply the electrodes, according to the sick person's complaint.

The open and exposed spark gap makes it a dangerous instrument in a layman's hands, and the electrical capacity of the machine excludes any effective heating except when applied over small portions of the body.

With the current turned on and a cylindric electrode in each hand, a simple test showed that the maximum capacity of the machine with the spark gap open wide was 300 milliamperes.

The sick person heard the advertisement over the radio. He called the company, and a lay salesman was sent, who sold him the machine and showed him how to use it. Apparently this patient was suffering from myocardial degeneration, with chronic bronchitis, as shown by edema in both legs. He coughed frequently. The sick man said that the salesman told him that he could treat his lungs by putting one plate on his chest and the other one under both feet.

In the opinion of the Council, the selling methods of the company unquestionably constitute a direct violation of the practice of medicine. The salesman calls on any person who telephones or writes and assures him that the machine will be good for what ails him, and if the sale is made, the salesman proceeds to instruct the buyer how to use it.

If the diathermy machine had sufficient electrical energy to be useful in some of the conditions mentioned in the booklet "Diathermy Theory Treatment and Science," it would be an extremely dangerous appliance to place in the hands of a layman. It would be ridiculous to consider this unit effective for supplying surgical cutting currents.

In the opinion of the Council on Physical Therapy, the Simplex Diathermy Company is practicing methods that are detrimental to rational therapeutics. Promotional radio advertising by those unqualified to practice medicine constitutes an appeal to the public with arguments which are unscientific and may harmfully enhance a feeling of false security on the part of the public.

The Council declares the Simplex Diathermy Machine inadmissible to its list of accepted devices.

Council on Pharmacy and Chemistry

REPORTS OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING RELATIVELY RECENT DECISIONS FOR THE INFORMATION OF BOTH THE PROFESSION AND THE MANUFACTURERS

PAUL NICHOLAS LEECH, Secretary

RECENT REVISIONS OR ELABORATIONS OF THE COUNCIL'S RULES OF INTEREST TO MANUFACTURERS AND THE MEDICAL PROFESSION

1 Use of Numerals or Letters in the Names of Medicinal Products

In general, the Council holds that trade names of drugs, when permissible, must be so framed as to indicate the potent element or constituent. There has been an increasing tendency to incorporate numbers in the names of medicinals in advertising to physicians. Such emphasis on numbers or letters undoubtedly tends to displace names and thus lead to confusion. It is the Council's desire to discourage the use of numbers, so far as prescribing is concerned, and to restrict the use of numbers to catalogue identification, in ordering from wholesalers and in storage on shelf. The Council held it advantageous, therefore, to establish a rule against the use of numerals or letters in connection with the names of accepted articles on labels, in New and Nonofficial Remedies, and in advertising, unless the number is clearly separated from the name and subordinated to the latter by type and, if feasible, by position. In accordance with this decision the Council voted to amend the comments to its rule concerning trade names by addition to the following statement:

Since the use of numerals or alphabetical designations in connection with drug names tends to take the emphasis away from the name and to displace the name, thus leading to confusion, the Council will not recognize the name of a drug in which the numeral or letter is an integral part of the name, except in special cases where the use of a numeral or letter seems desirable because further improvement of the product is anticipated in which case the Council may grant a special exemption from the rule. Under this rule the use of numerals or letters in connection with the name of a product will not be permitted on labels or in advertising unless the numeral or letter is clearly separated from and subordinated to the name by type and if feasible by position. This rule shall not apply to price lists and catalogues.

The statement as amended will appear in N N R, 1933, page 19 ("Proprietary [Trade] Names When Permitted")

2 Labeling of Ampules to Indicate Excess Content

In a report to the Council on a product marketed in ampules, it was brought out that whereas the ampule was labeled "total content of each ampule 2 cc" it was found that an average of 2.1 cc, could be withdrawn from the ampules. It was explained that it has become customary among manufacturers of pharmaceuticals to place in an ampule a slight excess over the amount which it is desired to withdraw.

This question has had extensive consideration by the Combined Contact Committee of the American Drug Manufacturers' Association and the American Pharmaceutical Manufacturers' Association in collaboration with the Food and Drug Administration of the U S Department of Agriculture and a special committee representing the American Medical Association.

The ninth report of this Combined Contact Committee issued by the Food and Drug Administration in January, 1932 summarizes the work done and the conclusions reached. In commenting to the Council on this report, the Council's Committee on Rules and Procedure pointed out that the term "— cc size" was agreed on by this Contact Committee as an acceptable designation of the contents of ampules, that the significance of the term "— cc size" was understood to be that the ampule contained a sufficient excess of medicament to permit the withdrawal and administration of the quantity indicated by the size denomination, that the solicitor of the Department of Agriculture had given the opinion that the spirit of the federal Food and Drugs Act would not be violated if ampules so designated

as to volume of contents contained in addition to the volume indicated only sufficient excess to insure withdrawal and administration of the amount indicated by the size, and that the Food and Drug Administration would be guided by the solicitor's opinion

The Contact Committee's report refers to "extensive experimental data designed to determine the volumes of different types of liquids which any specified ampule should contain to permit the physician to withdraw and administer to his patient the indicated dose"

Under the circumstances it seemed advisable that the Council should abide by the conclusions reached by the Combined Contact Committee and frame its ruling in accordance therewith

In accordance with the recommendation of its Committee on Rules and Procedure, the Council voted to amend the paragraph on "Statement of Composition," New and Nonofficial Remedies, 1932, page 14, by the addition of the following

In the case of solutions marketed in the form of ampules the term — cc size will be accepted as a proper indication of the volume of contents the significance of that term being understood to be that the ampule contains a sufficient excess of medicament to permit the withdrawal and administration of the dosage indicated by the size denomination. Individual ampules or unit packages thereof must bear a statement explaining the significance of the term size as it applies in a given instance. For example if ampules are labeled 2 cc size a satisfactory statement will be Each ampule contains a sufficient amount to permit withdrawal and administration of 2 cc.

3 Statement of Potency of Liver Extracts

The manufacturer of an accepted liver preparation wrote to the Council objecting to the statements found in the New and Nonofficial Remedies descriptions, and in the advertising and labels of such products, to the effect that a certain amount of the extract represents, or is equivalent to, a certain amount of fresh liver. The manufacturer stated that his objection was based on the ground that such statements imply a 100 per cent extraction of the active principle from the liver. In considering this matter, the Council agreed that it is necessary to avoid any implication of 100 per cent extraction. In regard to liver extracts and, indeed, with regard to any unknown chemical substance or substances shown to have therapeutic properties, and in consideration of the almost certainly variable degrees of efficiency in extraction procedures, to say nothing of the variability in response on the part of individual patients reasonable assurance of a reliable product for the physician's use is all that can be expected until more exact methods of assay are available. The Council held that such a statement affirming that a given quantity of extract represents or is equivalent to the antianemic potency of a given quantity of liver, does not imply a 100 per cent extraction but an equivalence checked at least originally by therapeutic assay. The Council therefore ruled that manufacturers of liver extracts shall be required to limit statements concerning the potency of the representative fraction marketed to the affirmation that a given quantity of extract represents or is equivalent to the antianemic potency of a given quantity of fresh liver

4 Use of Chemical or Pharmaceutic Name

One paragraph of the comments to Rule 8 (New and Nonofficial Remedies 1932, page 19) reads "When the proprietary or trade name for an article is considered insufficiently descriptive of its chemical composition or pharmaceutic character, the Council may require as a condition for the acceptance of such articles that a descriptive scientific name satisfactory to the Council shall appear on the labels, circulars and advertisements for such an article. For all definite chemical substances it is required that the scientific name be given prominence on the label in circulars and advertisements." Under "Proprietary Names for Unoriginal Articles" which follows it is provided that in the case of articles for which the Council has coined a name or for which a name has been adopted in the Pharmacopoeia the N N R or U S P name must appear on labels and in advertising. Although the second sentence quoted is taken by itself provides that the chemical name shall be given for all definite chemical substances the provisions have been interpreted to mean that when a name has been adopted by the Council for such a product or when it has been admitted to the Pharmacopoeia this Council or Pharmacopoeial name must

appear as a synonym and that the chemical name need not appear. To remove the ambiguity of the present provision, the Council voted to revise the sentence "For all definite chemical substances it is required that the scientific name be given prominence on the labels, in circulars and advertisements" to read "For all definite chemical substances it is required that the scientific (chemical) names be given prominence on the labels, in circulars, and in advertisements, provided that for those substances for which there are recognized Council or Pharmacopoeial names, such names shall be used and the scientific name need not appear"

This revision will appear in New and Nonofficial Remedies, 1933

5 Declaration of Composition of Nonmedicinal Articles "Accepted But Not Described"

Under the heading "List of Articles and Brands Accepted by the Council But Not Described in N N R." (New and Nonofficial Remedies, 1932, page 492) the following occurs

Nonmedicinal Articles—Articles which have been examined by the Council which are not advertised as therapeutic agents, the composition of which is sufficiently disclosed to permit judgment as to their harmlessness or safety, and the use of which under ordinary circumstances is, in the opinion of the Council, not contrary to the public welfare

While in accepting these products the Council required that the composition be sufficiently disclosed to permit judgment as to their harmlessness or safety, it has not required that any statement in reference to composition appear in advertisements or in the advertising. In the light of experience it was felt that this was scarcely adequate, since harmlessness or safety would evidently vary with individual cases, which the Council could not prejudge. The Council, therefore, declared that the rule for declaration of composition of accepted medicinal articles should also apply to nonmedicinal articles and voted to revise the statement concerning nonmedicinal articles "Accepted but not Described" to read as follows

Nonmedicinal Articles—Articles which have been examined by the Council which are not advertised as therapeutic agents the composition or essential ingredients of which are quantitatively declared on the label and in the advertising and the use of which under ordinary circumstances is in the opinion of the Council not contrary to the public welfare

This revision will appear in New and Nonofficial Remedies, 1933

BENZYL COMPOUNDS OMITTED FROM N N R

For several years the Council has considered the omission from New and Nonofficial Remedies of benzyl benzoate, benzyl fumarate, benzyl succinate and the various accepted brands of these drugs

Doubt has been expressed by several members of the Council as to whether or not these drugs have any therapeutic value of importance. As a result of the work of Macht, based on the hypothesis that it is the benzyl grouping in the papaverine molecule which determines its smooth muscle effect, there ensued a considerable vogue in the use of benzyl esters in a variety of biologic conditions associated with spasm of the smooth muscle: hypertension, asthma, angina, dysmenorrhea, biliary and renal colic and similar disorders

Benzyl benzoate was first admitted to New and Nonofficial Remedies in 1919. Extensive clinical use of the benzyl esters since that time has not confirmed the promise of therapeutic usefulness. The Council's referee knows of no new evidence presented in the last few years indicating that they have any important value in medicine

Since the period for which all the benzyl compounds listed in New and Nonofficial Remedies were accepted expires with the close of 1932, the referee recommended that they be omitted that the chapter "Benzyl Compounds" be referred to the collected volume of Annual Reports of the Council on Pharmacy and Chemistry as a matter of record and that this statement be adopted for publication

The Council adopted the referee's recommendation and voted to omit the following from New and Nonofficial Remedies: Benzyl Benzoate-Abbott and dosage forms Benzyl Benzoate-Fritzsche Benzyl Benzoate-H W & D and dosage forms Benzyl Benzoate-Mallinckrodt Benzyl Benzoate-Merck Benzyl Fumarate-Abbott and dosage form Tablets of Benzyl Succinate-H W & D and Benzyl Succinate-Merck

Committee on Foods

GENERAL COMMITTEE DECISIONS

THE COMMITTEE ON FOODS AUTHORIZES THE PUBLICATION OF THE FOLLOWING GENERAL COMMITTEE DECISION ADOPTED FOR ITS OWN GUIDANCE AND FOR THAT OF FOOD MANUFACTURERS AND ADVERTISING AGENCIES ON FOOD COMPOSITION AND FOOD ADVERTISING

RAYMOND HERTWIG, Secretary

QUESTIONNAIRE ADVERTISING

Questionnaires addressed to physicians, to members of other professional groups, or to nonprofessional individuals by food manufacturers or their agents, in most instances, do not elicit information of scientific consequence or significance. Questionnaires are of scientific value only when motivated by a sincere desire for truth or unbiased expert opinion rather than by self-centered interests or personal gain and the persons participating are carefully selected and represent those who are scientifically and otherwise qualified to express an unbiased thoroughly scientific opinion in keeping with established knowledge. In all cases, replies to questionnaires will be perfunctory and of little significance unless the replies are from persons whose critique and judgment are entitled to respect.

The use of questionnaires for obtaining information and data from the profession or the public for food advertising purposes is to be discouraged. Such information and data are given undue and unwarranted importance and significance by the public, are misunderstood as to their real value and worth, and therefore are misinformative and misleading.

REPORTS OF THE COMMITTEE

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION, AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

RAYMOND HERTWIG, Secretary

HAPPY JACK SELF RISING FLOUR
(Contains Phosphate, Bicarbonate of Soda and Salt)
(Matured, Bleached)

X-CELLENCE SELF RISING FLOUR
(Contains Phosphate, Bicarbonate of Soda and Salt)
(Matured, Bleached)

Manufacturer—Fant Milling Company, Sherman, Texas

Description—Self rising flours containing blended "hard" and "soft" long patent flours, baking powder (calcium acid phosphate and baking soda) and salt, bleached.

Manufacture—The ingredients are mixed in definite proportions in a batch mixer and automatically packed in cotton sacks. The flour is bleached with a mixture of benzoyl peroxide and calcium phosphate (1 part to 50,000 parts of flour) and nitrogen trichloride (one-ninth ounce per 196 pounds of flour).

Claims of Manufacturer—Self rising flours for home baking of biscuits.

WHITMAN'S CHOCOLATE FLAVORED SYRUP

Manufacturer—Stephen F. Whitman & Son, Inc., Philadelphia

Description—A pasteurized syrup containing water, sucrose, cocoa, invert sugar, salt and vanillin flavor.

Manufacture—The low fat content cocoa, salt and vanillin are worked into a smooth paste with about three fourths of the water of the formula in a mixing kettle, the remainder of the water and sugar are added. The batch is gradually heated to 88 C and pumped into a holding tank. The syrup mixture is passed through a high speed centrifugal clarifier and emulsifier, is homogenized to develop a smooth texture

and consistency, and is automatically packed in jars at 71 C. The sealed jars are pasteurized at 82 C for forty minutes.

Analysis (submitted by manufacturer) —

	per cent
Moisture	33.6
Ash	1.2
Fat	2.1
Protein (N × 6.25)	5.9
Reducing sugars before inversion as invert	9.9
Reducing sugars after inversion as invert	50.6
Sucrose	38.7
Crude fiber	0.9
Carbohydrates other than crude fiber (by difference)	56.3
Theobromine (Wadsworth method)	2.3
Caffeine	0.6

Calories—27 per gram, 77 per ounce

Claims of Manufacturer—A chocolate flavored syrup for the preparation of chocolate flavored milk, hot cocoa or other drinks. Also for dessert dressing, icings, bakings and table uses.

HEINZ STRAINED PEAS (Already Cooked Without Salt or Sugar)

Manufacturer—H. J. Heinz Company, Pittsburgh

Description—Canned comminuted and strained cooked peas retaining in high degree the mineral and vitamin content of the natural product, no added sugar or salt, the coarser fibrous portion is removed.

Manufacture—Selected peas are vined and shelled at the factory. The shelled peas are immediately washed and inspected for removal of foreign material or imperfect peas. No blanching process is used, to avoid loss of any valuable nutrients. The processes of preparation and packing are essentially the same as described for Heinz Strained Spinach (*THE JOURNAL*, Feb 25, 1933, p 577).

Analysis (submitted by manufacturer) —

	per cent
Moisture	84.3
Total solids	15.7
Ash	0.6
Sodium chloride (NaCl)	0.04
Fat (ether extract)	0.5
Protein (N × 6.25)	4.9
Reducing sugars as invert before inversion	0.0
Total reducing sugars as invert after inversion	2.9
Sucrose	2.7
Crude fiber	1.0
Carbohydrates other than crude fiber (by difference)	8.7
Calcium (Ca)	0.01
Phosphorus (P)	0.04
Iron (Fe)	0.001

Calories—0.6 per gram, 17 per ounce

Vitamins—The method of preparation efficiently protects the natural vitamin values. The strained peas is a good source of vitamins A, B and C and a fair source of G.

Claims of Manufacturer—For all table uses of strained peas, but especially intended for infants, children and convalescents and for special smooth diets. Only warming is required for serving. The natural mineral and vitamin values are efficiently retained.

PANTRY WHIPPING CREAM (Sterilized)

Manufacturer—S. M. A. Corporation, Cleveland

Description—Canned sterile homogenized cream of 36 per cent milk fat content.

Manufacture—The process of manufacture is essentially the same as that for Pantry Cream (*THE JOURNAL*, Feb 25, 1933, p 576), with the exception that the cream is standardized to a 36 per cent milk fat content.

Analysis (submitted by manufacturer) —

	per cent
Moisture	58.0
Total solids	42.0
Ash	0.5
Fat (ether extract)	36.0
Protein (N × 6.38)	2.8
Acidity as lactic acid	0.17
Lactose (by difference)	2.5

Calories—3.5 per gram, 99 per ounce

Micro-Organisms—The procedure of manufacture assures a sterile product as shown by the standard methods of bacteriologic analysis of milk of the American Public Health Association.

Vitamins—The vitamin content may be expected to approximate that of the pasteurized cream used.

Claims of Manufacturer—For all table uses of whipping cream.

HEINZ STRAINED CARROTS

(Already Cooked Without Salt or Sugar)

Manufacturer—H J Heinz Company, Pittsburgh*Description*—Canned comminuted and strained cooked carrots retaining in high degree the mineral and vitamin content of the natural product, no added sugar or salt, the coarser fibrous portion is removed*Manufacture*—Carrots grown especially for Heinz Company are topped and run through a mechanical peeler-washer, which removes most of the peel, they are trimmed by hand and any remaining peel is removed by scraping. The trimmed carrots are washed, inspected and placed in a closed cooker. The subsequent treatment and packing are essentially the same as described for Heinz Strained Spinach (THE JOURNAL, Feb 25, 1933, p 577)*Analysis* (submitted by manufacturer) —

	per cent
Moisture	92.4
Total solids	7.6
Ash	0.7
Sodium chloride (NaCl)	0.08
Fat (ether extract)	0.1
Protein (N \times 6.25)	0.9
Reducing sugars as invert sugar, before inversion	2.9
Total reducing sugars as invert, after inversion	4.4
Sucrose	1.4
Crude fiber	0.7
Carbohydrates other than crude fiber (by difference)	5.2
Calcium (Ca)	0.03
Phosphorus (P)	0.01
Iron (Fe)	0.001

Calories—0.3 per gram 9 per ounce*Vitamins*—The method of preparation efficiently protects the natural vitamin values. The strained carrots is an excellent source of vitamin A, a good source of B and G and a fair source of C*Claims of Manufacturer*—For table uses of strained carrots but especially intended for infants, children and convalescents, and for special smooth diets. Only warming is required for serving. The natural mineral and vitamin values are efficiently retained**FISHER'S YELLOW CORN MEAL**

(Bran and Germ Removed)

Manufacturer—The Fisher Flouring Mills Company, Seattle.*Description*—Finely granular yellow corn meal practically free from corn germ and bran*Manufacture*—Yellow corn is cleaned of foreign seed and materials, scoured and polished, broken between steel rolls and passed through purifiers and aspirators, ground material practically free of germ and bran and of a definite granulation is heat processed to destroy any insect infestation and packed in bags*Analysis* (submitted by manufacturer) —

	per cent
Moisture	11.8
Ash	0.9
Fat (ether extraction method)	1.7
Protein (N \times 6.25)	9.6
Crude fiber	1.1
Carbohydrates other than crude fiber (by difference)	74.9

Calories—3.5 per gram 99 per ounce**SMACO (201) LIQUID PROTEIN MILK***Manufacturer*—S M A Corporation, Cleveland*Description*—A liquid modified milk prepared from milk, cream and soluble casein (sodium caseinate), relatively higher in protein fat and minerals and lower in lactose than whole milk*Manufacture*—Milk complying with amendment No. 9 of the Cleveland Board of Health is pasteurized by the holding system and detatted in a centrifugal cream separator. Calculated quantities of milk fat, the skim milk and soluble casein (sodium caseinate) to produce a 7 per cent milk fat and 4.5 per cent protein mixture are admixed homogenized, canned, sterilized in autoclaves and immediately cooled

The soluble casein (sodium caseinate) is prepared from skim milk. The casein is precipitated with a minimum quantity of chemically pure hydrochloric acid. The supernatant whey is drawn off and the separated casein washed practically free from whey material with water. The washed casein is suspended in

water with just sufficient sodium bicarbonate to peptize the casein. The suspension is agitated until solution is complete. The solution is pasteurized and spray dried

Analysis (submitted by manufacturer) —

	per cent
Moisture	79.7
Total solids	20.3
Ash	0.8
Fat (ether extract)	7.0
Protein (N \times 6.38)	8.5
Lactose (by optical rotation using double dilution method)	4.0

Calories—1.1 per gram 32 per ounce.*Micro-Organisms*—The procedure of manufacture assures a sterile product as shown by the standard methods of bacteriological analysis of milk of the American Public Health Association.*Claims of Manufacturer*—A special food for infant feeding. When diluted according to directions and acidified with lactic acid, its composition conforms closely to Finkelstein's Eiweissmilch. The product is for use under the supervision of the physician, who will provide feeding instructions**FAIRWAY BRAND GOLDEN SYRUP**

(85 Per Cent Corn Syrup, 15 Per Cent Refiners' Syrup)

Packer—Wheeler-Barnes Company, Minneapolis*Distributor*—Twin Ports Wholesale Grocer Company, Superior, Wis*Description*—Table syrup, corn syrup base (85 per cent) with refiners' syrup (15 per cent), the same as Golden Oak Brand Amber Syrup (85 Per Cent Corn Syrup, 15 Per Cent Refiners' Syrup) (THE JOURNAL, Dec 3, 1932, p 1948)**MARTINELLI'S GOLD MEDAL PURE
CONCORD GRAPE JUICE**

(Pasteurized)

Manufacturer—S Martinelli and Company, Watsonville, Calif*Description*—Bottled pasteurized Concord grape juice*Manufacture*—Concord grapes from Eastern propagated vines grown in California are used. They are picked when fully ripe, held over night in a cool well ventilated warehouse, and run through a crusher and stemmer, which breaks the grapes without crushing the seeds and removes the stems. The grape pulp is heated in oak tanks by aluminum steam coils for thirty minutes at a temperature of 51 C, which enables solution of the color of the skins. The pulp is pressed between cloths on wooden racks, the expressed juice is run through a continuous pasteurizer of aluminum steam jacketed pipe and into five gallon glass-carboys (at 82 C), which are sealed while hot and stored in a cool warehouse for six months for clarification purposes. The clear juice is separated from the sediment and pumped to a supply tank, from which it is pumped through a filter consisting of disks of cotton cloth to the filling machine. The bottled and sealed juice is pasteurized for thirty minutes at 73 C*Analysis* (submitted by manufacturer) —

	per cent
Moisture	78.9
Total solids	21.1
Ash	0.4
Fat	trace
Protein (N \times 6.25)	0.3
Reducing sugars as dextrose	18.0
Sucrose (copper reduction method)	0.0
Titrateable acidity as tartaric acid	0.8
Carbohydrates (by difference)	19.6

Calories—0.8 per gram 23 per ounce*Claims of Manufacturer*—A pasteurized Concord grape juice for all table uses**BLAIR'S WHITE FOX SELF-RISING FLOUR
(Bleached)***Manufacturer*—Blair Milling Company, Atchison, Kan*Description*—Self-rising flour prepared from hard winter wheat "standard patent" flour, phosphate salt and soda, bleached.*Manufacture*—Selected ingredients are mixed in a batch mixer and automatically packed*Claims of Manufacturer*—For cake, biscuit and pastry baking in the home

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET - - - CHICAGO, ILL.

Cable Address - - - "Medic, Chicago"

Subscription price - - - Seven dollars per annum in advance

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SATURDAY, MARCH 4, 1933

PELLAGRA—A PERSISTENT PROBLEM

Apparently nature cannot always be induced to yield simple answers to legitimate scientific questions. After having been studied for twenty years in the clinic, the field and the laboratory, pellagra still remains a complicated problem. Its literature is too voluminous for any attempt at systematic or documented review. Space permits a mere glimpse at the diversity of the hypotheses that have been suggested. Is pellagra a nutritional deficiency or an infectious disease? The debate on this question, especially between the investigators of the Public Health Service on the one hand and of the Thompson-Macfadden Commission on the other, is well remembered. Jobling and Arnold, however, instead of an answer in terms of one theory, suggested a formulation that comprehends both views and something more beside. According to such an attitude, food faults open the way to an infective organism producing a substance which, more or less deleterious in any case, is so changed by light as to cause the symmetrical skin eruptions typical of pellagra under the influence of Southern sunshine, pellagra sine pellagra could be easily accommodated under the same theory and explained as involving the same pathologic changes except for the lack of sufficient photodynamic influence to develop the skin symptoms.

To the scientific student not directly involved in the controversy as to whether this is a nutritional or an infectious disease, it would seem that while the influence of food is in the great majority of cases predominant, the evidence indicating the possibility of some super-vening infective factor is too strong to be summarily dismissed. More than one epidemiologic study has indicated the spread of the disease after the manner of an infection or its inverse relation to efficient sewage disposal. And while the heroic exposures of the Goldberger group to the various discharges of pellagra patients yielded strikingly negative results, these may perhaps be regarded as balanced by the cases in which pellagra has occurred among people whose food habits were apparently normal but whose resistance may have

been lowered in other ways or overcome by large intakes of pathogens.

Some Southern clinicians also hold that "true" pellagra is a much more pernicious disease than are the great numbers of cases which respond so readily to dietary treatment as to be regarded by them as only "pseudopellagra." However, it now seems to be sufficiently established that pellagra as the term is generally used is so largely preventable by good feeding that for practical purposes it may be regarded as essentially a dietary deficiency disease in the sense that it is usually the nutritional condition of the patient which turns the scale. But is the nature of the nutritional deficiency here involved as clear cut as in the case of scurvy—or even of clinical beriberi, which many oriental physicians are inclined to regard as typically involving an infection superimposed on the vitamin B deficiency? It would seem that the dietary aspect of pellagra cannot be thus simplified unless a part of the evidence is set aside in rather arbitrary fashion or the term pellagra defined more narrowly than in the sense in which it is often used.

A few years ago the protein factor dominated the nutritional discussions of pellagra, and the literature offered what appeared to be fairly good evidence of the potency of certain proteins and even perhaps of certain individual amino-acids in this connection. British investigations of the problem of the prevention of pellagra among Turkish prisoners of war, and the great wealth of contributions from the devoted work of the Goldberger school during the decade 1915-1925, were cast almost entirely in terms of the protein theory. The work of McCollum and his colleagues during the same period indicated that some at least of the "pellagra-producing" diets could be made adequate by enrichment in protein, in certain mineral elements, and in vitamin A. A little later Underhill and Mendel showed that carotene has preventive and curative value in some cases of the pellagra-like black tongue of dogs. As the materials fed by McCollum to augment the intake of vitamin A probably increased the intake of carotene at the same time, the combined contributions from the Yale and the Johns Hopkins laboratories offer rather strong evidence that such fat-soluble substances as natural pigments and vitamin A may (at least in some cases) play an important part in this general problem.

The latter view and that which centered on protein are not necessarily incompatible with each other, if it is granted that the term pellagra in the clinic and the term pellagra-like in the laboratory have been used for a condition or a group of conditions in which the nutritional weakness of the body may be due to shortage of different nutritive factors alternatively, or to a group of such factors any one of which may turn the scale in the individual case. And just as these views are not found to be mutually exclusive, so they are not found to have been disproved by the undoubtedly important

recent work centering on the previously unknown water-soluble substance (or substances) which Goldberger first announced as P-P (pellagra preventive) and later called vitamin G

Rather it would appear that unless much more laboratory evidence to the contrary should be forthcoming, or until the terms pellagra and pellagra-like shall be more narrowly defined than at present, one should at least maintain an open-minded attitude toward the view that the nutritional deficiency which leads to pellagra may be of alternative or multiple rather than simple and invariant nature. This would seem consistent both with the general trend of the evidence and with the most recent contributions to it. Regarding the former it may be said, as was pointed out by the Committee on Nutritional Problems of the American Public Health Association a few years ago, that the one observation that has recurred consistently throughout the conflicting literature of pellagra is the curative and preventive value of milk, which is a good source of all the different nutritional factors that have seemed to be involved. In a contribution by Stiebeling and Munsell¹ from the United States Department of Agriculture, one finds evidence of pellagra preventive value in a number of articles of food which vary so widely in character as to suggest that they might be quite as satisfactorily interpreted in terms of a combination of nutritional factors as of any one alone, and Sherman and Derbigny² of Columbia University offer evidence that the adequacy of the protein intake has a significant bearing on the ability of experimental animals (in this case rats) to endure a shortage of vitamin G. In terms of the Goldberger hypothesis, this has an important possible bearing on the genesis of pellagra.

ENZYMES AND THEIR ACTIVITY

A little over a hundred years ago, Kirchoff observed that malt diastase brought about the same change in starch as was produced by heating with acid and that the hydrolytic agent in one instance the diastase and in the other the acid, apparently remained unchanged at the end of the reaction. In the intervening years, enzymes have been looked on as catalysts, substances that do not initiate or take a permanent part in the reaction but whose presence exerts an influence on the speed of the chemical change. They are considered to be organic in nature, produced only by living cells but not requiring the presence of the cells for their activity. Now, if any of the chemical changes occurring in living organisms are independent of the influence of enzymes, indeed, it has been stated³ that we may regard life as a system of cooperating enzymatic reactions. It is not surprising therefore that this group of substances

should have attracted the attention of investigators in the past or that, under the influence of the newer concepts of biochemistry, there should be a renewed interest in the fundamental nature of enzymes and the mechanism of their action.

For many years, investigators of the enzymes regarded them as proteins. The purest preparations, admittedly far from individual chemical compounds, seemed to be either proteins or substances requiring the presence of protein for their activity. This point of view has received definite support during the past decade. In 1926, Sumner² isolated from the jack bean a globulin which could be crystallized and which is apparently identical with the enzyme urease. Northrop,³ four years later, succeeded in obtaining crystalline pepsin from commercial preparations, these crystals were protein. In 1931, trypsin⁴ and pancreatic amylase⁵ were prepared in crystalline form and in each case the material possessed the physical and chemical characteristics of protein. Subsequent study of the biochemical reactions of urease and of pepsin has led to a mass of convincing evidence pointing to the fact that these enzymes are proteins. However, this view has not gone unchallenged. Employing adsorption methods for the separation and purification of the enzyme preparations, Willstätter¹ and his school contend that they have obtained active enzymes which are not protein in nature and that when, in other enzymes, protein is present, it represents an accompanying or protecting part rather than the active part of the complex. In a recent review, Sumner⁶ has made a vigorous defense of the conception of enzymes as proteins so far as urease and pepsin are concerned, it seems reasonably certain that the protein of the crystals and the hydrolytic potency cannot be dissociated from each other.

How do these organic catalysts act? It has long been known that the enzymes exhibit a remarkable specificity in their reactions, a property independent of the purity of the preparation. Furthermore, enzymatic activity is greatly influenced by factors such as hydrogen ion activity, presence of salts and products of the reaction. The current view of the mechanism of this type of reaction is that the enzyme as well as the substance acted on is responsive to these environmental circumstances, a conception readily explained if these catalysts are proteins. The initial reaction is a chemical combination between enzyme and substrate, then occurs a decomposition with the appearance of the characteristic end products together with the restitution of the enzyme. The initial combination of enzyme with substrate has been shown, in the case of certain proteolytic reactions, to be conditioned by the configuration of the component amino-acids of the peptide as well as by the

¹ Stiebeling H. F. and Munsell H. E. *Food Supply and Pellagra* U. S. Dept. of Agriculture, Bulletin (Dec. 17) 1932.
² Sumner J. B. and Derbigny H. C. *Studies on Vitamin G (B)* with Special Reference to Protein Intake. *J. Biol. Chem.* 99: 195-197.
³ Willstätter R. *Lectures and Notes on Enzyme Research* 1931.

² Sumner J. B. *J. Biol. Chem.* 69: 435 (Aug.) 1926.

³ Northrop J. H. *J. General Physiol.* 13: 739 (July) 1930.

⁴ Northrop J. H. and Kunitz M. *Science* 72: 262 (March 6) 1931.

⁵ Caldwell M. L., Butler, L. E. and Sherman H. C. *Science* 74: 5 (July 10) 1931.

⁶ Sumner J. B. *J. Nutrition* 6: 103-193.

effective acidity or basicity of groups adjacent to the primary point of attachment of the enzyme

As emphasized in the recent review of Balls,⁷ many of the newer concepts of the mechanism of enzyme activity have been based on purely artificial systems involving, thus far, mainly decompositions of proteins or simpler peptides. Thus, synthetic peptides are subjected to enzymatic decomposition, and the details of the mode of action are elicited by adjusting the structural features of the substrate. Through the use of these experimental devices, information of fundamental value has been obtained in the immediate past. If life is a series of equilibriums maintained largely through the action of enzymes, recent biochemical research in this field has brought us definitely nearer a more perfect understanding of what life may be.

Current Comment

AMERICAN STUDENTS IN FOREIGN MEDICAL SCHOOLS

Because of the situation created by the matriculation of numerous American students in foreign medical colleges and the difficulties associated with the admission of such students to the examinations of American licensing boards, special consideration was given the subject by the Federation of State Medical Boards in its annual session in Chicago, February 14. At this time, according to the secretary, Dr. Walter L. Bierring, the following recommendations were adopted:

1 That no American student matriculating in a European medical school subsequent to the academic year 1932-1933 will be admitted to any state medical licensing examination who does not, before beginning such medical study, secure from a state board of medical examiners or other competent state authority a certificate, endorsed by the Association of American Medical Colleges or the Council on Medical Education and Hospitals of the American Medical Association, showing that he has met the premedical educational requirements prescribed by the aforementioned association.

2 That no student, either American or European, matriculating in a European medical school subsequent to the academic year 1932-1933 will be admitted to any state medical licensing examination who does not present satisfactory evidence of premedical education equivalent to the requirements of the Association of American Medical Colleges and the Council on Medical Education and Hospitals of the American Medical Association, and graduation from a European medical school after a medical course of at least four academic years, and submit evidence of having satisfactorily passed the examination to obtain a license to practice medicine in the country in which the medical school from which he is graduated is located.

These recommendations had been previously endorsed by individual state medical licensing boards. The American student, therefore, who goes abroad to complete his medical education will do well to get in touch with the medical licensing board of the state in which he eventually intends to practice or with the Council on Medical Education and Hospitals before spending money and time or he may find that he has made an

error that will require years of study and additional expense to correct. The second recommendation serves to prevent exploitation of American students by some foreign medical schools. Obviously, the purpose of these resolutions is to safeguard the practice of medicine in the United States and to maintain the high standards of medical education that now obtain in this country.

THE BLOOD PLATELETS

Much attention is being directed at present to the various types of cells that circulate in the blood. Differentiation of the cells, both of the colored and the colorless variety, is proceeding effectively. The blood count of today calls for something more than an enumeration of the total number of "red" and "white" cells in a specified unit volume of blood. The apparatus employed is being improved, the technic of measurement is becoming more refined. The value of the results obtained depends on the establishment of certain norms within the broad limits of which the figures for good health are included. In the case of the erythrocytes the normal ranges of their concentration in the blood have become well standardized. The errors in making the "blood counts" and possible deviations from the "average" are generally recognized. This is by no means equally true of the blood platelets, the enumeration of which becomes important in the study of the hemorrhagic diseases. This is particularly true in purpura hemorrhagica and, as a recent writer¹ states, is also of great interest and probably of more value than is realized in the study of anemias, leukemias and associated disorders. Since the blood platelets are derived from the megakaryocytes of the bone marrow, he adds that they should give, in association with a study of the number of reticulocytes and neutrophils, a complete index as to the activity of the marrow. A widely used American textbook of physiology records the average number of platelets as 300,000 per cubic millimeter, adding that the extremes reported vary from 200,000 to 778,000. A popular British textbook fails to designate any figure. The discrepancies in the scientific literature are undoubtedly considerable. Dameshek¹ remarks that the chief difficulty encountered in the enumeration of the blood platelets depends on the marked tendency of these bodies to clump together. This difficulty has often led to neglect of this valuable laboratory procedure. His review of some records of the average number of blood platelets per cubic millimeter of normal persons, as determined by six recognized methods, includes the following figures: 234,000, 297,000, 300,000, 469,000, 536,000, 619,000. As the result of his own elaborate investigations at the Beth Israel Hospital in Boston, Dameshek reports that the mean blood platelet count found for men was 716,000 per cubic millimeter, the median count, 710,000 per cubic millimeter. Fifty-five per cent of the counts were between 600,000 and 800,000 per cubic millimeter.

¹ Dameshek, William. A Method for the Simultaneous Enumeration of Blood Platelets and Reticulocytes, *Arch. Int. Med.* 50: 579 (Oct) 1932.

and 84 per cent were between 500,000 and 900,000 per cubic millimeter. The normal range for men is probably represented by the latter figure. The normal count in women is made uncertain by the complicating presence of the menstrual cycle. The intermenstrual range is from 400,000 to 800,000 per cubic millimeter. According to Dameshek the experimental error is probably not greater than 70,000 per cubic millimeter when the erythrocyte count is normal and not more than 10,000 per cubic millimeter when the erythrocyte and blood platelet counts are very low. The new method permits the simultaneous enumeration of the blood platelets and the reticulocytes, and depends on the use of an isotonic, anticoagulating solution containing the "vital" dye brilliant cresyl blue. The platelets are examined under an oil immersion lens. The estimation of the reticulocytes likewise is becoming a necessity in clinical hematologic diagnosis.

AWARDS AND RECOGNITIONS IN CHEMISTRY AND IN MEDICINE

One of the debated points in the field of science is the value of prizes, awards, medals, certificates of merit, or similar trophies in stimulating research or in establishing in the public mind the value of exceptional scientific results. Readers of *THE JOURNAL* are, no doubt, familiar with the numerous recognitions of this character now existing in the field of medicine. The American Medical Association itself has established medals and certificates as awards conferred annually in the Scientific Exhibit. There are such prizes as the Nobel Prize, the Cameron Prize, the Alvarenga Prize and many others which recognize contributions of extraordinary merit. Recently Prof. John J. Abel of Johns Hopkins University received the Conne Medal, awarded annually to an individual responsible for a discovery in chemistry which proves of value in medicine. This medal is awarded by a jury selected by the Chemists' Club of New York from among the leaders of both the chemical and medical professions and was instituted primarily with the underlying purpose of bringing the medical and chemical professions closer together in a common effort to render aid to suffering humanity. The work of Dr. Abel in isolating active principles of glandular organs and other tissues has been mentioned repeatedly in these columns. In contrast with what may be considered a well merited award to a man who has received numerous other awards in recognition of his work is the recent award of a medal by the New York section of the American Chemical Society to Prof. Wilder Bancroft for his extraordinary views on the effects of sodium thioacetate and for his theory of agglomeration—or maybe it is conglomeration—in relationship to the treatment of certain types of mental disease. To the physician this seems to be a premature acceptance of an unestablished hypothesis and of a method of treatment for which there is not the slightest scientifically controlled evidence. Obviously, incidents of this type cast doubt on the whole system of rewards and prizes in the field of scientific research and discovery.

Association News

ABSTRACT OF MINUTES OF MEETING OF BOARD OF TRUSTEES HELD AT HEADQUARTERS, CHICAGO, FEB 16 AND 17, 1933

A meeting of the Board of Trustees was held at Association headquarters, Chicago, Feb 16 and 17, 1933, and the following actions were taken:

EDITORIAL ON INCREASE IN COST OF GERMAN PERIODICALS

At the request of the Chairman of the Committee on the Cost of Current Medical Periodicals, appointed by the American Library Association, the Board of Trustees authorized the publication in *THE JOURNAL* of an editorial in regard to the publication and comparative costs of medical periodicals.

COMMITTEE TO PREVIEW MOTION PICTURES

With the cooperation of the Medical Society of the County of New York and of the Los Angeles County Medical Association, the Board has appointed two committees to advise producers of motion pictures regarding the details of pictures having a bearing on medicine. The personnel of these committees is: Drs. Charles T. Sturgeon, John Vruwink and Harry H. Wilson of Los Angeles, and Drs. Peter Irving and David J. Kaliski of New York City.

EXTENSION OF CREDIT TO PHYSICIANS

The Board authorized that *THE JOURNAL* be continued to subscribers who, on account of being temporarily embarrassed, are more than a year in arrears in their payments, provided a promise to remit is received from them.

COMMITTEE ON FOODS

Drs. Mary S. Rose, New York, and James McLester, Birmingham, Ala., were added to the Committee on Foods, and the terms of service of the several members were fixed as follows: Drs. Hess and Bailey, to expire in 1934; Drs. Fishbein and Powers, 1935; Drs. Wilder and Mendel, 1936; Drs. Jeans and Rose, 1937, and Dr. McLester, 1938.

TRAINING OF MEDICAL OFFICERS IN THE RESERVE OFFICERS' TRAINING CORPS

In view of the fact that, so far as can be learned, it is not proposed to effect any saving by the proposed elimination of military training for physicians, dentists and veterinarians, but that the total amount to be appropriated is to remain the same as has been asked for by the War Department for the maintenance of the Reserve Officers' Training Corps, which covers military training for physicians, dentists and veterinarians, and in view also of the fact that the discontinuance of this training would mean a regrettable loss to the Medical Department since the Medical Department R. O. T. C. units constitute the principal source of recruitment not only for the various sections of the Medical Department Officers' Reserve Corps but also of the Medical Department of the Regular Army, the Bureau of Legal Medicine and Legislation was authorized to cooperate with the Surgeon General of the Army in his efforts to maintain Medical Corps, Dental Corps and Veterinary units in the Medical Officers' Training Corps.

LIMITATION OF RETIRED MEDICAL OFFICERS BY APPROPRIATION BILL

The Bureau of Legal Medicine and Legislation was also instructed to endeavor to protect the interests of retired medical officers.

HOMOLOGOUS LEGISLATION IN REGARD TO PAY FOR FLIGHT SURGEONS

The Board further approved cooperation with the Surgeon General of the Navy in an endeavor to procure for the officers and men in the Medical Corps extra compensation for aerial service corresponding to the extra compensation paid officers and men in other corps of the Navy when similarly engaged.

QUARTERLY CUMULATIVE INDEX MEDICUS

Consideration was given to suggestions that two, instead of four, issues a year of the *Quarterly Cumulative Index Medicus* be published, and that the cumulative feature be eliminated. After careful deliberation, however, it was felt that the adopting of either or both of these suggestions would impede the progress of research and handicap particularly the persons for whom the index is primarily published, and it was decided to continue the index in its present form.

DISCONTINUATION OF AFFILIATION WITH ASSOCIATION
PROFESSIONELLE INTERNATIONALE DES MÉDECINS

It was decided to discontinue affiliation with the Association Professionelle Internationale des Médecins because of the present unfavorable economic conditions and also because, owing to the fact that there are fifty-four major governmental units of the United States, in addition to the federal government and to approximately 3,100 county units, and that each state and territory has its own law-making bodies, it is impossible to cooperate to the fullest extent with the Association Professionelle Internationale des Medecins by answering its questionnaires.

RESOLUTION FROM THE MEDICAL SOCIETY OF THE
STATE OF PENNSYLVANIA RELATIVE TO
MEDICAL PRACTICE

The following preambles and resolution adopted by the Board of Trustees of the Medical Society of the State of Pennsylvania at its meeting in Harrisburg, Dec 6, 1932, were approved:

WHEREAS, There have been formed important national organizations of physicians, specialists, other than the American Medical Association, and

WHEREAS, Such organizations fundamentally formed for scientific purposes have from time to time publicly expressed opinions concerning the entire practice of medicine, especially in its social and economic relationships, and

WHEREAS, An unusual emphasis on the social and economic position of medical practice has recently been precipitated by the published report of the national committee known as the Committee on the Costs of Medical Care, be it

Resolved, That, in the interest of the welfare of the public and the maintenance of the most serviceable form of medical practice, the proper representatives of the American Medical Association request other national medical organizations whose qualifications for membership include membership in the American Medical Association to publicly declare their opinions on general social, legislative and economic relationships of medical practice only through approved channels of the American Medical Association. To this end the Board of Trustees of the Medical Society of the State of Pennsylvania pledges its own efforts and influences to bring about this most desirable point of view in the minds of the members of the Medical Society of the State of Pennsylvania, who are also members or Fellows of the other organizations referred to. They also respectfully request the Board of Trustees of the American Medical Association to bend every effort to accomplish this purpose throughout the Association at the earliest possible moment in order that the sane evolutionary progress of medical practice may not be disturbed by social experiments which endanger the health and the welfare of our citizenship, and which have proved a pernicious health influence in other nations.

APPOINTMENT OF REPRESENTATIVES

The following appointments were made: Dr Dean Lewis, President of the Association, to represent that body at the meeting of the British Medical Association, to be held in Dublin, July 25-28, 1933; Dr W W Bauer, to act in an advisory capacity to the Advisory Committee to the 4-H Health Movement; Dr Albert Soland, to represent the Section on Radiology of the American Medical Association at the Fourth International Congress of Radiology, to be held in Zurich in 1934; and Dr Thurman Rice of Indianapolis to succeed Dr Orlando H Petty (deceased) on the Joint Committee on Health Problems in Education of the American Medical Association and the National Education Association.

TERMS OF SERVICE OF MEMBERS OF COUNCIL
ON PHYSICAL THERAPY

The terms of service of the members of the Council on Physical Therapy were fixed as follows: Drs Desjardins and Williams, to expire in 1933; Drs Pemberton, Mock and MacKee, 1934; Drs Garrey, Coblentz and Coulter, 1935; and Drs Osgood, Gaenslen and Karsner, 1936.

AMERICAN MEDICAL DIRECTORY

Authorization was given for a canvass of subscribers to the Directory to ascertain whether or not a new edition is desired.

ANNA FULLER MEMORIAL PRIZE

The Board gratefully received notification of the fact that, in the will of the late Egbert C Fuller, provision is made for an award, or awards, of a suitable sum out of the income of the Anna Fuller Fund to such person or persons as shall at any time within successive periods of five years each, commencing one year after his death, make a real and outstanding contribution to knowledge on the subject of cause, care, prevention or cure of cancer. The award, or awards, according to the provisions of the will, are to be made on the recommendation of the President of the American Medical Association, the Dean of the Johns Hopkins Medical School and the Dean of the Harvard Medical School, and on such terms and conditions as Mr Fuller's trustees shall fix.

ELECTIONS

Nominations to fill vacancies on the editorial boards of the special journals, on councils and on committees were considered, and the following appointments were made:

Drs Louis Casamajor, Martin F Engman, Chevalier Jackson, E Starr Judd, Walter R Parker, and L R DeBuys were elected to succeed themselves on the editorial boards of the *Archives of Neurology and Psychiatry*, *Archives of Dermatology and Syphilology*, *Archives of Otolaryngology*, *Archives of Surgery*, *Archives of Ophthalmology* and *American Journal of Diseases of Children*, respectively. Dr George M Coates was elected to succeed Dr George Fetterolf (deceased) on the editorial board of the *Archives of Otolaryngology*, and Dr Victor C Jacobson to succeed Dr W G MacCallum on the editorial board of the *Archives of Pathology*.

Dr J J Morton was elected to succeed himself on the Committee on Scientific Research, and Drs R A Hatcher, H N Cole and E E Irons to succeed themselves on the Council on Pharmacy and Chemistry.

MISCELLANEOUS

Appropriations were made to carry on the work of the various councils and bureaus, as well as for the Committee on Scientific Research and the Committee on the Protection of Medical Research. Attention also was given to other matters, more or less routine, many of which will receive further consideration at a later date.

MEDICAL BROADCAST FOR THE WEEK
American Medical Association Health Talks

The American Medical Association broadcasts on Monday and Wednesday from 9 45 to 9 50 a m (central standard time) over Station WBBM (770 kilocycles, or 389.4 meters).

The subjects for the week are as follows:

March 6 Faith in Food Advertising
March 8 A Life for Ten Dollars

There is also a fifteen minute talk sponsored by the Association on Saturday morning from 9 45 to 10 o'clock over Station WBBM.

March 11 Scientific Experiment and Medicine

The Adrenal Cortex—The adrenal glands were first described in 1563 by Eustachius, but up until the middle of the nineteenth century they were chiefly objects of curiosity to anatomists and excited little interest among members of the medical profession. However, in 1855, following the publication by Thomas Addison of the classical paper describing the disease which now bears his name, these glandular structures came into prominence. Since this time they have played an important, if somewhat doubtful role, in the speculations and theories of experimental biologists and clinicians. The discovery of adrenalin and study of its interesting pharmacodynamic properties in the early years of the present century greatly stimulated experimental and clinical work on the adrenals, and as a result careful investigation soon established the fact that it is the cortex of the gland that is essential for life, and not the medulla or adrenalin secreting portion—Swingle, W W, and Pfiffner J J. *The Adrenal Cortical Hormone, Medicine* 11 372 (Dec) 1932.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARIZONA

Bill Introduced—S 110 proposes to require all applicants for licenses to marry to present physicians' certificates stating that both parties to the proposed marriages do not have tuberculosis in the infectious stages and have not been adjudged by courts of competent jurisdiction to be of unsound mind and that the male parties do not have venereal disease.

ARKANSAS

Bill Introduced—S 322 proposes to authorize city councils to levy annual occupational taxes on all practitioners of the healing art.

CALIFORNIA

Beaumont Exhibit—To commemorate the centenary of the publication of William Beaumont's (1785-1853) "Experiments and Observations on Gastric Juice and Digestion," in Plattsburg, 1833, an exhibit has been arranged in the library of the University of California Medical School. The first edition of this physiologic classic is on view together with a number of other editions of the work, and with other material relating to Beaumont, *California and Western Medicine* reports.

Tuberculosis Meeting—The annual meeting of the California Tuberculosis Association will be held at the Hotel Coronado, Coronado, March 10-11. On the program will be the following physicians:

Emor H. Christopherson, San Diego, Does the Preventorium Prevent Tuberculosis?

John N. Force, Berkeley, Racial Tuberculosis—Epidemiological Problems.

Leland G. Hunnicutt, Pasadena, Bronchoscopy in Tuberculosis.

Percy K. Telford, Los Angeles, Mexican Tuberculosis Problem.

Edwin S. Bennett, Los Angeles, Criteria of Diagnosis in U. S. Veterans.

Rudolph H. Sundberg, San Diego, Adolescent Tuberculosis.

Hans Lusser, San Francisco, Relation of Endocrine System in the Development of Treatment of Tuberculosis.

Emil Bogen, Olive View, Progress in Tuberculosis Research.

Philip H. Pierson, San Francisco, Evaluation of Laboratory Tests in Determining Activity in Tuberculosis.

Leroy H. Briggs, San Francisco, Nonpulmonary Tuberculosis.

Health education will be discussed by Drs. James Houloose, Long Beach; Walter M. Brown, San Francisco; Jay D. Dunshie, Pasadena; and Mr. Paul Edwards, editor-in-chief of the *San Diego Sun*. Papers considering the early diagnosis of tuberculosis will be presented by Drs. Ethel D. Owen, San Francisco; Roscoe C. Mann, Santa Barbara; Arthur Hieronymus, Oakland; and Miss Mary Stanton, Los Angeles. Drs. William H. Park and Camille Kereszturi, both of New York, will address an evening session on BCG Immunization.

CONNECTICUT

Bill Introduced—H 1079 to amend the workmen's compensation act proposes to permit chiropractors to render the medical treatment which employers must supply their injured employees.

GEORGIA

Society News—The Ben Hill County Medical Society and the state department of health sponsored a traveling tuberculosis clinic, February 2-3.—Dr. David T. Smith, Durham, N. C., addressed the 14th District Dental Society, and the Fulton County Medical Society, February 21, on Relation of Fissure Spirochetal Organisms of the Mouth to Trench Mouth, Pyorrhea, Bronchiectasis and Lung Abscess.

Bills Introduced—S 142 to amend the medical practice act proposes to eliminate that provision directing the board to elect a secretary-treasurer from its membership so as to conform with the terms of the act of 1931 approved August 29 providing for a joint secretary of the several state examining boards. The bill proposes also that members of the board be paid a \$15 per diem and all necessary expenses incident to holding board meetings. S 155 to amend the pharmacy practice act proposes to require all applicants for registration as pharmacists to be graduates of schools of pharmacy recommended by the board of pharmacy and in addition to have twelve months of practical experience in a place where the duties of pharmacist are performed by licensed pharmacists.

Under the present law, applicants can be licensed after examination if they have had thirty-six months' actual experience in a pharmacy or have graduated from a school of pharmacy.

IDAHO

Bill Passed—S 99, to prohibit the possession, sale or distribution of "anhalonum, otherwise known as peyote," has passed the senate.

ILLINOIS

Bills Introduced—H 325 proposes to eliminate those provisions in the medical practice act authorizing the licensing of midwives. H 326 proposes to require both parties to proposed marriages to present certificates from licensed physicians that they are free from venereal disease.

Public Health Council Organized—The establishment of a public health council in De Witt County has been announced as the outgrowth of a diphtheria prevention campaign sponsored about a year ago by the De Witt County Medical Society. Membership is open to physicians who are members of the county medical society, officials of the schools, and two representatives of any other organization in the county interested and willing to participate in the activities and purpose of the council. A broad public health program will be carried on through committees.

Chicago

Hospital Anniversary—More than 200 members and friends of the woman's board of the Presbyterian Hospital gathered at the hospital, January 9, to commemorate the fiftieth anniversary of the institution. It was reported that, including the admissions of that day, 280,489 patients had been hospitalized since the hospital opened, of these, 83,496 were entirely free. The family of the founder of the hospital, Dr. Joseph P. Ross, was represented by Mrs. Frederick T. Haskell, a daughter. The first ambulance of the hospital was supplied by the woman's board.

Drs. Dick Awarded Cameron Prize—The Cameron Prize for 1933 has been awarded jointly to Drs. George F. Dick, professor of medicine and chairman of the department of medicine, Division of Biological Sciences, University of Chicago, and Gladys H. Dick of the John McCormick Institute for Infectious Diseases, in recognition of their work on the etiology and treatment of scarlatina. This award is made annually by the University of Edinburgh, Scotland, on the recommendation of its faculty of medicine. The prize amounts to about \$685 (at the present rate of exchange) and is given annually "to a person who, in the course of the five years immediately preceding, has made any highly important and valuable addition to practical therapeutics." Other Americans who have been given the award include Dr. Harvey Cushing, 1924, and Dr. George R. Minot and Dr. William P. Murphy, Boston, 1930.

INDIANA

Bill Introduced—S 277 proposes to accord hospitals treating persons injured through the fault of other persons liens on all rights of action claims, judgments, settlements or compromises accruing to the injured persons because of their injuries. This lien however is not to attach to claims under the workmen's compensation act.

Personal—Dr. Wilber F. Dunham, formerly of Kempton, has been appointed superintendent of the school for feeble-minded youth at Fort Wayne. He will also be head of the Muscatatuck Colony for epileptics, Butlerville, it is reported.—Dr. Marcus W. Lyon, Jr., South Bend, was recently elected president of the Indiana Academy of Science.—Dr. Robert B. Sanderson, Crown Point, has been appointed superintendent of Healthwin Hospital, South Bend, succeeding the late Dr. St. Clair Darden.—Dr. Jesse W. Bowers, Fort Wayne, was elected president of the Indiana State Board of Registration, January 11.

KANSAS

Bills Introduced—H 629 proposes to permit physicians to possess and prescribe intoxicating liquor under the same general restrictions that are imposed by the federal law. S 458 proposes that no patient be admitted to any dispensary of the University of Kansas School of Medicine unless a licensed doctor of medicine certifies that the patient is unable to pay for medical services. S 498 to amend the medical practice act proposes (1) to require licensees to register annually with the secretary of the board of medical registration and examination and to pay annual fees of \$1 (2) to make the secretary of the board the custodian of a common seal and of the books.

and records of the board, and (3) to make the records and the register of the board prima facie evidence in courts of law of all matters recorded therein. H 517 proposes to authorize the board of dental examiners to license persons to practice as dental hygienists. S 465 proposes to require all applicants for licenses to marry to present certificates from licensed physicians stating that the parties to the proposed marriages are free from mental and venereal disease.

MASSACHUSETTS

New Commissioner of Mental Diseases—Dr James V May, Boston, has been appointed commissioner of the department of mental diseases, state department of health, succeeding the late Dr George M Kline. Dr May has been superintendent of the Boston State Hospital since Dec. 1, 1917. He is now president of the American Psychiatric Association.

Club Observes Fiftieth Anniversary—The Brookfield Medical Club, the second oldest independent medical club in the state, reached its fiftieth anniversary, Nov 23, 1932. At an anniversary celebration earlier in the year Dr John Richard Fowler, Spencer, described its history. Seven physicians organized it in 1882 at the home of Dr Albert G Blodgett, Ware, the first secretary of the organization. Dr Edgar H Guild, Springfield, who joined the club in its first year, is the oldest living member. Dr Blodgett, the founder, was president of Hampshire County Medical Society, 1904-1905, and for six years president of the board of health of Ware.

Sunday Public Lectures—A course of free public lectures on medical subjects by the faculty of Harvard University Medical School on Sunday afternoons began, January 15, with an address by Dr William B Castle on anemia. Other lecturers were Drs George H Bigelow, January 22, on the depression and health; Walter B Lancaster, January 29, sparing the eyes; Gustave P Grabfield, February 5, rheumatism; George H Wright, DDS, February 12, color changes in the mouth and teeth; an aid in diagnosis of systemic disease; and Dr Henry R Viets, February 26, nerve, nerves and nervousness. Subsequent speakers and their subjects will be

Dr Everard L Oliver, March 5, the care of the skin and scalp
Dr Shields Warren, March 12, cancer and radiation therapy
Dr Randall Clifford, March 19, the tuberculosis problem today
Dr Wilson G Smilie, March 26, a discussion of the common cold

MICHIGAN

Society Presents Plays—Two one act plays were presented, January 14, by members of the Wayne County Medical Society and their wives. The titles of the plays were "The Music Cure," by G Bernard Shaw, and "The Vahant," by Holworthy Hall and Robert Middlemass. Music was furnished by the Noon Day Study Club trio.

Memorial to Dr Burgess—A bronze tablet was unveiled in the Wayne County Coroners' Court Building, Dec 20, 1932, to the memory of Dr James E Burgess, for twenty years coroner of the county, who died last year. The tablet, which was unveiled by Dr Jay M Burgess, the brother of Dr Burgess, was the gift of officials and employees of the coroner's office. Speakers at the ceremony included Drs H Wellington Yates, president of the Wayne County Medical Society, and Albert L French.

Society News—Icie G Macy, Ph D, Detroit, addressed a joint meeting of the Wayne County Medical Society and the Detroit District Dental Society, February 14, on "The Application of Nutrition to Medicine and Dentistry."—Allan W Rowe, Ph D, Boston, addressed a joint meeting of the Wayne County Medical Society and the Detroit Obstetrical and Gynecological Society, February 7, on "Constitutional Influences in Human Infertility."—Dr Sam Z Levine, Flushing, N Y, addressed the Detroit Pediatric Society, January 11, on "Metabolism in Infants."

MINNESOTA

Bills Introduced—H 203, to amend the law regulating massage, proposes to exempt from the provisions of the law "institutions where massages are given as a part of a treatment under the direction of a licensed physician." S 291 and H 531 propose to create a board of naturopathic examiners and to regulate the practice of naturopathy. Applicants for such licenses must pass examinations to be given by the board of basic science examiners before presenting themselves to the naturopathic board for examination. H 598 proposes to accord hospitals treating persons injured through the fault of other persons liens on all causes of action accruing to the injured persons because of their injuries.

NEBRASKA

Survey of Health Service—Dr Leslie L Lumsden of the U S Public Health Service, at the request of the health commissioner of Omaha, the Douglas County Board of Commissioners and the state health director, made a survey in December, 1932, of health service and of medical and surgical care of the indigent in Douglas County. Separation of public health activities and relief activities was Dr Lumsden's first recommendation. He then recommended the appointment of a full time health officer to serve both the city of Omaha and Douglas County, even if it should be necessary to amend state laws to effect the arrangement, and adequate appropriations on a scale of 50 cents or more per capita. To carry on the medical, surgical and dental relief of the indigent, Dr Lumsden suggested the creation of a county board of ten members, including the deans of the Creighton and University of Nebraska medical schools, the mayor of Omaha, the chairman of the county board of commissioners, two members of the Omaha-Douglas County Medical Society, and representatives of the Omaha District Dental Society, the Chamber of Commerce, the Omaha Bar Association and the council of social agencies. A full time county physician should be appointed with headquarters and facilities at the Douglas County Hospital, the report states. He also recommended the provision of more beds for hospitalization of indigents, especially at the county hospital, and the provision of space for operating rooms there. A suggestion was that health work in the public schools, now under the jurisdiction of the board of education, be merged in the activities of the county-city health department. Finally he advised that the county medical and dental societies and other interested organizations appoint special committees to cooperate with the health department and the hospital board when they are organized.

NEVADA

Bill Introduced—S 61 proposes to repeal the law regulating the possession and distribution of narcotic drugs and to enact the uniform narcotic drug act.

NEW HAMPSHIRE

Bills Introduced—S 21 proposes to amend the provisions of the food and drug law with respect to misbranding, so as to include cosmetics and disinfectants, and so that labels need not bear statements of the quantity or proportion of alcohol contained in the packages to which they are affixed. S 20, to amend the workmen's compensation act, proposes to increase from fourteen days to thirty days the period during which an employer must furnish reasonable medical and hospital services to an injured employee.

NEW JERSEY

Personal—Dr John V Smith, Perth Amboy, has been appointed a member of the state board of institutions and agencies.

Bill Introduced—A 170, to supplement the chiroprody practice act, proposes to define chiroprody as "the examination, diagnosis, or treatment of any ailment of the human foot, by surgical, medical, mechanical, electrical or physical means."

Graduate Lectures—The Medical Society of New Jersey in cooperation with Rutgers University has recently presented a course of lectures on recent advances in medicine and surgery for members of the Union County Medical Society in Elizabeth. The lecturers and their subjects were

Dr John A. Kolmer, Philadelphia, pneumonia therapy
Dr Temple S. Fay, Philadelphia, cerebral injuries
Dr William Goldring, New York, renal diseases
Dr Thomas McCrae, Philadelphia, hypertension and hypotension
Dr William Wayne Babcock, Philadelphia, recent advances in surgery
Dr Henry L. Bockus, Philadelphia, diseases of the liver

NEW MEXICO

Bills Introduced—H 169 proposes to require the board of pharmacy to issue, without examination, certificates of registration to licensed physicians owning or operating drug stores. H 179 proposes to require the boards of county commissioners to provide medical attention for the indigent sick in their counties. H 220 proposes to require county health officers to furnish medical treatment without charge to the indigent sick in their counties. H 207 proposes that no physician employed on a full-time basis by the United States government in any United States government hospital, reservation, sanatorium or other institution shall practice medicine on any one in the state not a patient in said hospital, reservation, sanatorium or institution.

NEW YORK

Bills Introduced.—S 1043 proposes to repeal the laws relating to the possession and distribution of narcotic drugs and to enact the uniform narcotic drug act. A 1150 proposes to make it a misdemeanor for any person to prepare, dispense or sell any drug or medicine which does not have affixed on the bottle or container a label stating the name of the drug and the name and quantity of each ingredient composing it. The bill, however, is not to apply to preparations prescribed by a licensed physician, dentist or veterinarian.

Health at Utica.—Telegraphic reports to the U S Department of Commerce from eighty-five cities with a total population of 37 million, for the week ended February 18, indicate that the highest mortality rate (19.2) appeared for Utica and the rate for the group of cities as a whole, 12.4. The rate for Utica for the corresponding week of 1932 was 9.7 and that for the group of cities, 12.5. The annual rate for the eighty-five cities for the seven weeks of 1933 was 12.7 as against a rate of 12 for the corresponding period of the previous year. Caution should be used in the interpretation of weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for a large area or that they have a large Negro population may tend to increase the death rate.

New York City

Brickner Lecture.—Dr Alfred W Adson, Rochester, Minn, presented the third annual Walter M Brickner Lecture at the Hospital for Joint Diseases, February 23, on "The Physiological Effect of Sympathectomy in Treatment of Peripheral Vascular Diseases, Hirschsprung's Disease and Cord Bladder."

Nurses' Training School Discontinued.—The New York Post-Graduate Medical School and Hospital announced, February 6, that its school of nursing would be discontinued in March. The present student body will remain to be graduated, but new students will not be accepted. Plans for graduate training of nurses will probably be formulated during the coming year, the announcement stated. The action is said to have been prompted by the reports of the Committee on Grading of Nursing Schools, which have shown that the profession is overcrowded. The school of nursing is the third oldest in New York, having been organized in 1885.

University News.—A discussion course on medical sociology was recently begun at Long Island College of Medicine by Dr James P Warbasse. The course, which is compulsory for second year students, is designed to stimulate medical students to realize the relationship of the physician to the profession and to society. Graduates of Georgetown University Medical School Washington, D C, resident in and near New York, organized a New York chapter of the Georgetown University Society at a recent meeting at the New York Post-Graduate Medical School and Hospital. Dr John P Ruppe was elected president and Dr John W Mahoney, Bayside, secretary.

NORTH DAKOTA

Bill Introduced.—H 270 apparently proposes to permit any person to practice obstetrics or midwifery after filing a certificate in the office of the register of deeds of the county in which he desires to practice stating that the person desires to practice obstetrics or midwifery.

OHIO

Bill Introduced.—H 201 proposes to create a board of chiropractic examiners and to regulate the practice of chiropractic. Chiropractic is defined as the art and science of locating, and adjusting by hand the subluxations of the articulations of the human spinal column which is deemed to be the twenty-four movable vertebrae including the sacrum and coccyx and adjacent tissues for the purpose of removing any interference with nerve transmission but it shall not include major surgery nor the administration or prescription [sic] of any drug or medicine included in materia medica.

Society News.—Dr Russell H Birge was elected president of the Cleveland Medical Library Association at the annual meeting January 20 to succeed Dr George E. Follansbee. Dr Clyde I. Cummer was re-elected chairman of the board. Dr Carl H. Lenhart, director of the library and Dr Thomas P. Shippey, secretary. The annual report showed that the registration of readers for the year was 12,840 and that the library now has 50,211 books and bound journals. The society has 692 members. —Dr William L. Galle, Toronto, Ont. and Dr J. L. B. had addressed the Cleveland Academy of Medicine

February 17, on "Appendicitis in Childhood" and "Surgical Treatment of Peptic Ulcer," respectively.—Dr Thomas B. Magath, Rochester, Minn., addressed the Toledo Academy of Medicine, February 3, on "Parasitology—A Study of Animal Parasites." Dr Max Ballin, Detroit, addressed the academy, January 7, on surgical treatment of the parathyroid gland.

OKLAHOMA

Bill Introduced.—H 199 proposes to prohibit licensed physicians from charging fees in excess of 25 cents per mile for making professional calls. Any physician violating the provisions of the bill is to be guilty of a misdemeanor and to be fined not less than \$25 nor more than \$100.

OREGON

State Board Elects Officers.—Dr Norman E. Irvine, Lebanon, was recently elected president of the state board of health, Drs Albert Mount, Oregon City, vice president, and Frederick D. Stricker, Portland, secretary.

Bill Introduced.—S 280 proposes to make it unlawful for the state industrial accident commission or any employer to enter into any contract for first aid or medical service to injured workmen, except with licensed physicians.

Departments Consolidated.—The departments of obstetrics and gynecology of the University of Oregon Medical School, heretofore separate, have been combined since the death of Dr Clarence J. McCusker, clinical professor of obstetrics, and Dr Raymond E. Watkins, now clinical professor of gynecology, has been appointed professor and head of the department of obstetrics and gynecology, according to an announcement by Dr Richard B. Dillehunt, dean.

PENNSYLVANIA

Bill Introduced.—H 534 proposes to authorize the department of health to license persons to practice beauty culture. Such licensees are to be permitted, among other things, to remove superfluous hair from any part of the female body.

Philadelphia

Beaumont Centenary Meeting.—The section on medical history of the College of Physicians of Philadelphia held a special meeting, February 13, in commemoration of the one hundredth anniversary of William Beaumont's historic work on digestion. Speakers on Beaumont were Drs Walter R. Steiner, Hartford, Conn., "Dr William Beaumont: A Sketch", Julius Friedenwald, Baltimore, "Beaumont's Work as Related to Gastro-Enterology," and Isidor S. Ravdin, "Beaumont's Work as Related to Surgery."

Dr Bond Honored.—The Philadelphia Award, consisting of a gold medal, a scroll of honor and a check for \$10,000, was presented to Dr Earl D. Bond, chief of clinical service and medical director of the Institute of the Pennsylvania Hospital, at a ceremony at the Academy of Music, February 8. The award, Philadelphia's highest civic honor, was founded twelve years ago by the late Edward W. Bok to be presented annually to the citizen who during the preceding calendar year has performed or brought to culmination an act or contributed a service calculated to advance the best and largest interests of the community of which Philadelphia is the center. Former Ambassador to Japan Roland S. Morris, chairman of the award committee made the presentation. Dr Bond has been head of the department for mental and nervous diseases at Pennsylvania Hospital since 1913, professor of psychiatry in the school of medicine since 1930 and in the graduate school since 1920. He is also director of the Philadelphia Child Guidance Clinic. He is the second physician to receive the Bok award the first having been Dr Chevalier Jackson in 1926. Dr Bond announced that he had arranged to turn the check accompanying the award into a fund for free treatment of mental patients in the institute.

SOUTH CAROLINA

Bill Introduced.—H 334 proposes to create a board of chiropods (podiatry) examiners and to regulate the practice of chiropods (podiatry). Chiropods (podiatry) as defined by this act is the surgical, medical and mechanical treatment of all ailments of the human foot.

SOUTH DAKOTA

Bill Introduced.—S 152 proposes to prohibit licensed physicians from collecting in the courts of the state for travel while attending a patient a greater sum than 25 cents for each mile actually traveled in attending the patient.

Bill Enacted—H 76, according to physicians, nurses and hospitals, caring for persons injured through the fault of other persons, liens on the claims, causes of action, judgments or settlements accruing to the injured persons on account of such injuries, has become a law

TEXAS

Bill Introduced—H 88 proposes to accord to hospitals or clinics, rendering hospital services, caring for persons injured through the fault of other persons, liens, limited to \$5 for each day of treatment, on any rights of action, recoveries or settlements accruing to the injured persons by reason of their injuries. This lien, however, is not to attach to claims or recoveries under the employer's liability act

UTAH

Bills Introduced—H 121 proposes to prohibit the dispensing or distribution of "chloral, paraldehyde, tinctura, opii, camphorata, sulphonethylmethanum, or any compound and derivative of barbituric acid" except on the prescription of a licensed physician. H 187, to amend the workmen's compensation act, in effect, proposes to permit chiropractors to render the medical aid required to be furnished to injured employees

VERMONT

Bill Introduced—H 173 proposes to create a board of naturopathic examiners and to regulate the practice of naturopathy. Licentiates are to be permitted to sign birth and death certificates

WASHINGTON

Bills Introduced—S 282 proposes that the nature of alcohol and other narcotics and their effects on the human system be included in the branches of study required to be taught in all public schools in the state. S 250, to amend the nursing practice act, proposes (1) to require all registered nurses to register annually and to pay an annual fee of \$1 and (2) to require all applicants for registration as registered nurses after March 1, 1936, to be graduates of accredited high schools and graduates of accredited training schools for nurses. S 266, to amend the workmen's compensation act, proposes, apparently, to make compensable all occupational diseases arising out of employments covered by the act. S 276, to amend the drugless therapeutics practice act, proposes that hereafter no separate certificates shall be issued to practice mechanotherapy, suggestive therapeutics, food science or physcultopathy, and that all licenses issued under the act be deemed licenses to practice naturopathy. Drugless therapeutics, the bill proposes, as defined by the act, is to be considered as synonymous with naturopathy

WISCONSIN

Bills Introduced—A 289, to amend the medical practice act, proposes to require applicants for licenses to practice medicine and surgery or osteopathy and surgery to be citizens of the United States. A 306 proposes to accord to hospitals treating persons injured through the fault of other persons liens on all causes of action, judgments, settlements or compromises accruing to the injured persons by reason of their injuries. A 370 proposes to prohibit the dispensing or other distribution of hypnotic drugs except on the prescription of a licensed physician, dentist or veterinarian. The bill defines hypnotic drugs to include diethyl barbituric acid, and other alkyl, aryl or metallic derivatives of barbituric acid, all urethanes and ureides, chloral hydrate or homologues thereof, sulphonal or derivatives thereof, and paraldehyde. S 207, to amend the medical practice act, proposes to reduce the board of medical examiners from eight to seven members and to repeal those provisions requiring the board to include three allopaths, two homeopaths, two eclectics and one osteopath. S 208, to amend the workmen's compensation act, proposes to authorize the industrial accident commission to order injured employees claiming compensation to be examined by a regular physician selected by the county medical society of that county in which the employee was injured. S 209, to amend the workmen's compensation act, proposes that the industrial accident commission shall have jurisdiction to pass on the reasonableness of medical and hospital bills when the county medical society or the hospital and the employer cannot agree

WYOMING

Bill Enacted—S 6, providing a penalty for any person practicing medicine, surgery or obstetrics without having first received and recorded a certificate from the state board of medical examiners, has been enacted as Chapter 24, Laws 1933

GENERAL

Medical Bills in Congress—*Changes in Status* H R 14395, relating to the prescribing of medicinal liquors, was passed by the House, February 25. It was amended so as to permit the prescribing of malt liquors. H R 14724, the Navy Department Appropriation bill, has passed the House. It carries a restricting clause which prohibits flight surgeons in the navy from receiving extra pay for flying

Report of Ella Sachs Plotz Foundation—Thirty-three grants for research in medicine and surgery were made during 1932 by the Ella Sachs Plotz Foundation for the Advancement of Scientific Investigation. Eighteen were made to scientists in countries outside the United States. In accordance with the foundation's policy of giving aid to researches on a single problem or allied problems, seven of the investigations bear on nephritis, a subject that has received attention each year since the foundation was established nine years ago. Other general subjects favored are internal secretion and infection. Applications for grants for the year 1933-1934 should be in the hands of the executive committee before May 1. They should include statements as to the nature of the proposed research, the amount of money requested and the objects for which the money is to be expended. Dr Joseph C Aub, Collis P Huntington Memorial Hospital, 695 Huntington Avenue, Boston, is secretary of the committee

Vitamin Advisory Board Established—The establishment of the U S Pharmacopeial Vitamin Advisory Board for the preparation and distribution of vitamin standards within the United States, for scientific research only, has been announced. International vitamin standards for vitamins A, B and D, sent to this country by the Permanent Standard Commission of the Health Organization of the League of Nations, are to be issued without cost, but only for scientific research. It is anticipated that "Reference Cod Liver Oils" of known vitamin A or vitamin D potency will be distributed for the standardization of cod liver oil and other vitamin-active products. Members of the vitamin advisory board are

Lafayette B Mendel, Ph D, Yale University, New Haven
Henry C Sherman, Ph D, Columbia University, New York
Elmer M Nelson, Ph D, protein and nutrition division bureau of chemistry and soils, department of agriculture Washington D C
Evaander F Kelly, Baltimore, Pharm D, representing the U S Pharmacopeial board of trustees
E Fullerton Cook, Ph M, Philadelphia, representing the U S Pharmacopeial Commission Committee of Revision

Expenditures for Veterans—Authority to reduce by 5 per cent all benefits to veterans and other beneficiaries of the Veterans' Administration was requested by Brig Gen Frank T Hines, veterans' administrator, in a letter to the Senate subcommittee on appropriations, February 10. The letter was in answer to an inquiry from the committee concerning the effect of a 5 per cent cut in the appropriation for the coming year. General Hines pointed out that \$851,150,120 of the appropriation required for 1934 is not susceptible of reduction because certain items are specified in the organic law covering veterans' benefits. This would leave a remainder of \$115,688,514 to bear the reduction, which would amount to \$48,341,931.70, leaving only \$67,346,582.30 for administration, medical, hospital and domiciliary services and for hospital and domiciliary facilities. As hospitalization and domiciliary care alone will require about \$65,000,000, it is obvious that operation of these facilities would be seriously curtailed, General Hines said. He therefore asked for authority to cut all expenditures 5 per cent or to apply the 5 per cent cut only to the amounts not specified by law

CORRECTIONS

Catastatic—The word "catastatic" should have been omitted from the second sentence in the next to the last paragraph of the Query and Minor Note on "Predetermination of Sex by Controlling Reaction in Vagina," published in THE JOURNAL, February 18, page 519

Pasteur's Mistakes—The abstract entitled "Pasteur's Mistakes," which appeared in THE JOURNAL, February 18, page 516, seems to give the impression that the invectives against Pasteur were those of the author, Dr G B Webb, and not those of Robert Koch. Dr Webb writes asking THE JOURNAL to point out that the paragraph in his article preceding the abstract reads "Koch felt that Pasteur's Geneva address had been a polemic specifically attacking himself and his promised paper 'Über die Milzbrandimpfung' came 'red-hot from the grill'." Hear his invectives!

Foreign Letters

LONDON

(From Our Regular Correspondent)

Feb 4, 1933

Manchester Rejects the Pasteurization of Milk

The authorities on public health teach that pasteurization of milk is a valuable measure for the prevention of the conveyance of tuberculosis and other diseases by milk and that, unless the milk can be absolutely guaranteed to be free from disease germs, milk should always be pasteurized. Yet the people of Manchester, one of the largest cities in England, have rejected pasteurization. The public health committee of the town council approved the proposal of the health officer that all milk other than tuberculin tested sold within the city should be pasteurized. The proposal was embodied in a bill for presentation to parliament, which was submitted to a town meeting. Opposition to the bill was so well organized that five of its clauses, including that for compulsory pasteurization, were defeated. The council, which approved of the bill by a large majority, then submitted the proposal to a poll of electors. Though the council issued 350,000 explanatory leaflets, the proposal was again defeated. It was pointed out in support of the bill that 75 per cent of the milk supplied to Manchester is pasteurized, that 323 children are infected every year with bovine tuberculosis from milk, that the treatment of this disease costs Manchester \$90,000 annually, that 40 per cent of the herds react to the tuberculin test, that 2 per cent of the milch cows have tuberculous udders, and that tubercle bacilli were found in 14 per cent of the milk supply. Against these powerful arguments it was alleged that pasteurization would drive the small milk producer retailers out of business and cost the farmers up to \$3,500 each for a pasteurization plant. The farmers said that what was needed was greater consumption of milk, that children prefer it raw, and that it is the small retailer who keeps the price down. Moreover, fresh milk is more nutritious, since pasteurization precipitates calcium and destroys vitamins. This is contrary to the pronouncement of the ministry of health that pasteurization properly performed ensures a milk which is not only safe but also retains its food value practically unimpaired. Propaganda was carried so far as the issue of posters and leaflets saying 'Pasteurization will kill your babies'. The result has well been described as a triumph of organized vested interests against good government.

The London Cancer Society

The London Cancer Society has recently been formed. It might be thought that the existence of so many medical societies in London and the comprehensive Royal Society of Medicine which has a section for every specialty, would render any further societies superfluous. It is true that there is no society specially devoted to cancer though there are two organizations devoted to cancer research but these are mainly concerned with experimental work. The new society will evidently be mainly clinical. The president is Mr Lockhart-Mummery, a pathologist. The objects of the society are to study every aspect of the cancer question and to report on new methods of diagnosis and treatment. An appeal is made to the profession to attend the meetings and bring forward any new idea or improvement in technique that may assist in curing or alleviating malignant disease. As regards diagnosis the view was expressed at the opening meeting that if the public would consent to periodic medical examination and if all methods of diagnosis were used few growths would escape detection at an early stage. On this idea the speaker threw cold water referring to cases in which the doctor failed to detect the beginning of a malignant growth and to the fact that by the time growths are

palpable or visible by the x-rays or the naked eye they may in certain regions be inoperable. Moreover, in the intervals between periodic examinations a quickly growing tumor may defeat the elaborate scheme. Another objection to the new society is that cancer is not a true specialty but a disease that comes within the province of every specialist. The true specialties are based on anatomic divisions of the body, on the basis of which is erected special knowledge of structure and function with corresponding special clinical knowledge and methods of diagnosis and technic in operating. All this has no application to a disease that can occur in any part of the body.

Death from Coronary Disease Held to Be an Accident of Employment

The extraordinarily wide manner in which the workmen's compensation act is applied in the courts has been pointed out in previous letters. Anything happening to a workman that can in any way be connected with his occupation is held to be an "accident arising out of and in the course of his employment" and therefore entitling him or his dependents to compensation. Contesting this by submitting that a man's death was not due to or connected with his work but to a fatal disease, from which he had long been suffering, has uniformly failed. The latest case shows that even death due to coronary disease can be held to be an "accident" arising out of employment. A man employed in the process of dipping heavy sheets of metal into a pot of dross and removing them had to clean out the dross from the pot after dipping a certain number. After he had finished cleaning he exclaimed "O my chest" and died within ten minutes. The case came into court. The medical evidence was that he had been suffering from disease of the coronary arteries for some time but that the physical exertion that he underwent in performing his ordinary work accelerated his death. The judge decided that the death was caused by accident "arising out of and in the course of the man's employment" within the meaning of the workmen's compensation act and awarded \$3,000 compensation to his widow and children. An appeal was made and the higher court confirmed this judgment. A further appeal was now made to the highest court in this country the House of Lords. In giving judgment Lord Buckmaster said that the case that was made against the judgment appealed from was that, in order to show that a man was entitled to the benefit of the act, it was necessary to show that he had suffered an injury as the result of some definite thing that he did in the course of his work. If in the normal course of his activities, owing to the imperfect condition of his arteries, he broke down and died, the appellant's case was that that was not sufficient unless one could point to a specific injury resulting from a specific act. Whatever might be said about the merits of that argument some twenty years ago it was impossible to be advanced today while that house as well as inferior courts was bound by what was done in a previous case of the kind. In it the judge had held that the result of work was failure of blood supply resulting in angina pectoris and that it was because the man was engaged in doing his ordinary work in that disease condition that the work and the disease together contributed to his death. In the present case the five judges of the House of Lords agreed in confirming the judgment of the lower court.

The Coming Flight Over Mount Everest

Another attempt is to be made to climb the highest mountain in the world Mount Everest (29,141 feet), accompanied by flight over the summit by two airplanes. Elaborate preparations have been made for the flight. Oxygen and heating electrical apparatus have been provided. The main supply of oxygen will be carried in three 750-liter cylinders which should afford a sufficient supply for the two occupants of the machine for a period of two and one half hours even if the machine

taken from cadavers whose death occurred more than twelve hours before the blood is collected may cause grave poisoning, its use is not advisable. The method is indicated in all the cases in which transfusion is indicated. After a Wassermann test and the determination of the blood group, the blood is kept in the icebox until a transfusion is necessary. In this way, a man may be useful to his fellow men even after death.

Spain Needs More Hospitals and Asylums

Dr B. Hernúnda recently published an article in which he expresses the necessity for more hospitals and insane asylums in Spain. The Asylum of Pilar de Saragossa has 700 patients, most of them from the provinces of Aragon. The insane asylum of Leganes has 400 psychiatric patients. The list of psychiatric patients waiting to be admitted to the asylum is enormous. Fifty-five names are on the waiting list of the insane asylum of Leganes. In the asylum of Carmen for incurable patients there are 254 patients, and 370 on the waiting list. The asylum of Jesus Nazareno for women has 242 beds and a waiting list of 876. Similar figures could be obtained from all the rest of the asylums in Spain.

Physicians Honored

Dr. Madrazo of Santander was the first surgeon who practiced antiseptic surgery in Spain. Dr. Madrazo's life has been spent in doing good to his fellow countrymen, by whom he is greatly loved. However, months ago, some unknown person placed a bomb in Dr. Madrazo's home, the explosion of which damaged the building. The people of the province were indignant and recently manifested their esteem for Dr. Madrazo by unveiling a monument to him at the entrance to a school which Dr. Madrazo gave twenty-five years ago to the city for the education of children. Dr. Madrazo is 85 years old.

Dr. Ayela of Ijona, Alicante, was recently honored by his countrymen, who unveiled a monument to him. Dr. Ayela has devoted his life to doing good for others.

Dr. Marañón's beautiful residence at Toledo was once the residence of Tirso de Molina, who wrote Don Juan. At Dr. Marañón's house the document recognizing the republic was signed by representatives of the falling monarchy. Recently Dr. Marañón gave a banquet to members of the cabinet, the ministers of France and of Spain, and other diplomats. Later Dr. Marañón went to Paris, where the University of Paris conferred on him the title of Doctor Honoris Causa, because of his scientific studies. At the Sorbonne, Dr. Balthazard presented the emblems of the University of Paris and made reference to the scientific work of Marañón. Dr. Marañón aided his country in giving a better government without bloodshed and then declined any honors from the republic, that he might continue to practice medicine.

Accidental Thallium Poisoning of Children

In a previous letter was reported an accident in an orphan asylum in Granada, where thallium salts were prescribed for the treatment of ringworm in children, and through a mistake of the physician the children were given a dose ten times larger than the average dose. As a result, fourteen children died. The judge found Dr. C. Puertas Gaona guilty of the death of the children and Dr. I. Duran, the pharmacist J. Muñoz Medina, and the intern J. Calero Lopez guilty as accomplices. The defendants did not ask for judicial aid. Dr. Gaona was given two years, four months and one day in prison. Duran, Medina, and Lopez will pay a fine of 500 pesetas (\$50) and the costs of the case.

Deaths

Dr. Pulido Fernandez, retired secretary of the National Academy of Medicine of Madrid and of the Senate, died in Madrid at the age of 82. He had been director of the Anatomical

Museum of Madrid, founder of several medical and scientific journals, and author of books of medicine, surgery and public hygiene. He was a great orator, and a vice president and life member of the Senate. Through his efforts, the first clinics of specialists were opened in Spain, and the situation among mental patients was improved. He convinced the judges that frequently mental disease is the underlying condition in conflicts between individuals and the penal code. Capital punishment in Spain previously took place in public, Dr. Pulido Fernandez asked that the law be modified. Capital punishment takes place now inside the prisons. Dr. Pulido Fernandez taught anatomy, surgery, gynecology and other subjects in the medical curriculum. He devoted most of his life to the development of social medicine. He was representative of Spain at the Office international d'hygiene in Paris for several years. While he was director of public health in Spain he wrote a book on sanitation and sewerage, with especial reference to conditions prevailing in Sevilla, which have since been changed. He organized several campaigns against bubonic plague in Portugal and the Canary Islands. He was a great speaker, but on one occasion he had an emotional inhibition of the voice, and he wrote a book on this topic, called "La Emocion Oratoria," which has been published in several languages.

Dr. Mejias Is Dead

Dr. J. Mejias, director of the Instituto de Terapeutica Biologica of Dr. Llorente, is dead. He was the first Spanish physician to go around the world in an airplane, the *Conde Zepelin*. He made the same trip several times. He wrote a book on aviation. He often said that a physician in an airplane is necessary to those persons in whom disturbances of the circulatory system due to high altitudes occur.

Marriages

HEWITT HASSAILE ROBINSON, Meridian, Miss., to Miss Jeanette Hamilton of Oakland, Calif., at Stanford University, Calif., January 1.

ELIAS SAMPSON FAISON, Faison, N. C., to Miss Gloria Jones of Little Rock, Ark., in Vienna, Austria, Dec. 17, 1932.

WILLIAM S. HATHAWAY, Rochester, Mich., to Miss Joan Elizabeth Mitchell of Sarnia, Ont., Canada, January 14.

JAMES ALEXANDER WHITE, Alexandria, La., to Mrs. Josephine Moore Bethune at Augusta, Ga., January 25.

HAROLD B. HOGUE, Ewen, Mich., to Miss Marjory Roberts of Los Angeles, at Elmhurst, Ill., Dec. 31, 1932.

TADEUSZ MARYAN LARKOWSKI to Florentina Malachowski, DDS, both of Chicago, January 25.

JOHN L. HAMILTON, Barnesboro, Pa., to Miss Helen Wells of Steubenville, Ohio, Dec. 17, 1932.

GEORGE W. WALBRIGHT, Metropolis, Ill., to Miss Dora E. Thacker of Danville, Dec. 25, 1932.

OLIVER COPE, Philadelphia, to Miss Alice De Normandie of Lincoln, Mass., Dec. 28, 1932.

EDWIN O. VAUGHAN to Miss Louise Cunningham, both of St. Albans, W. Va., February 9.

CECIL HOLMES RAND, Fremont, N. C., to Miss Lucile Slade at Boydton, Va., January 14.

EDMOND FRANCIS LEX, Tiffin, Ohio, to Miss Veronica Grilhot of Versailles, January 5.

GEORGE R. SEWARD, Peoria, Ill., to Miss Grace Rosenbaum of Bradford, January 23.

EUGENE FALSTEIN to Miss Charlotte Rosenfield, both of Chicago, Dec. 25, 1932.

JACOB D. FLEMING, Frazeyburg, Ohio, to Miss Ella Shiplev, January 23.

SAMUEL A. SCUDERI, Los Angeles, to Miss Leah Ciocca, Dec. 3, 1932.

GRANT E. ROYCE, Harvard, Ill., to Miss Charlotte Wakeley, January 11.

Deaths

Albert Vincent Hennessy ♂ Council Bluffs, Iowa, State University of Iowa College of Medicine, Iowa City, 1906, associate professor of clinical surgery, Creighton University School of Medicine, Omaha, served during the World War, on the staffs of the Mercy Hospital and St. Bernard's Hospital, aged 48, was killed, January 15, when he fell or jumped from a window of his room on the sixteenth floor of a hotel in New York.

Erwin Bertrand Herrington, Findlay, Ohio, University of the City of New York Medical Department, 1889, University of Louisville (Ky.) School of Medicine and the Louisville (Ky.) Medical College, 1896, member of the Ohio State Medical Association, aged 67, died January 12, in the Robinwood Hospital, Toledo, of abscess of the hip as the result of a fall.

Kirkland Ruffin, Norfolk, Va., University of Virginia Department of Medicine, Charlottesville, 1886, member of the Medical Society of Virginia, fellow of the American College of Surgeons, formerly on the staffs of Norfolk Protestant Hospital, Hospital of St. Vincent de Paul and St. Christopher's Hospital, aged 66, died, Dec. 25, 1932.

Robert Edgar Baldwin ♂ Tampa, Fla., University of Louisville (Ky.) School of Medicine, 1909, member of the Radiological Society of North America, served during the World War, superintendent of the Tampa Hospital, aged 46, died, February 2, at the Mayo Clinic, Rochester, Minn., of duodenal ulcer, nephritis and uremia.

William McDowell Mastin, Mobile, Ala., University of Pennsylvania School of Medicine, Philadelphia, 1874, member of the American Surgical Association and the Southern Surgical Association, fellow of the American College of Surgeons, surgeon to the Providence Infirmary, aged 79, died, February 3, of pneumonia.

Richard Blackmore, Northport, N. Y., Boston University School of Medicine, 1902, member of the American Psychiatric Association and the New England Society of Psychiatry, served during the World War, aged 60, on the staff of the Veterans' Administration Hospital, where he died, February 6, of heart disease.

Van Horne Norrie ♂ New York, College of Physicians and Surgeons in the City of New York, Medical Department of Columbia College, 1889, professor of clinical medicine at his alma mater, director of the medical service and visiting physician to the Bellevue Hospital, aged 70, died, January 31, of heart disease.

Dean Tyler Smith, Holly Hill, Fla., Chicago Homeopathic Medical College, 1889, fellow of the American College of Surgeons, at one time professor of surgery and clinical surgery, University of Michigan Homeopathic Medical School, Ann Arbor, aged 72, died, January 29.

Edward M. Irwin, Belleville, Ill., Missouri Medical College St. Louis, 1892, member of the Illinois State Medical Society, for twenty-five years bank president, formerly congressman and coroner, aged 63, died, January 30, in St. Elizabeth's Hospital, of pneumonia.

David Caneen Northcross, Detroit, College of Physicians and Surgeons of Chicago School of Medicine of the University of Illinois, 1906, aged 56, died, January 3, in the Receiving Hospital, of stab wounds inflicted by a tenant from whom he endeavored to collect rent.

Duncan Brown McEachern ♂ Chicago, Jenner Medical College, Chicago, 1906, College of Physicians and Surgeons of Chicago School of Medicine of the University of Illinois, 1907, on the staff of the Southshore Hospital, aged 56, died, February 6, of heart disease.

Frederick Karl Kislig ♂ Dayton, Ohio, Starling-Ohio Medical College, Columbus, 1911, fellow of the American College of Surgeons, served during the World War, aged 45, urologist to the Miami Valley Hospital, where he died, February 7, of heart disease.

John Cook, Douglas, Ariz., Baltimore Medical College, 1902, member of the Arizona State Medical Association, fellow of the American College of Surgeons, served during the World War, aged 60, died January 12 in Portal, of carcinoma of the intestine.

James Bowdon Bird ♂ Kansas City, Mo., Washington University School of Medicine St. Louis, 1906, aged 51, on the staff of St. Joseph Hospital, where he died January 27, when the automobile in which he was driving was struck by a street car.

Ronald Steele Saddington, New York, University of Toronto Faculty of Medicine, Toronto, Ont., Canada, 1927, on the staff of the Rockefeller Institute for Medical Research, aged 30, died, February 4, of pulmonary embolism and thrombophlebitis.

Thomas Joseph Crowley, San Mateo, Calif., University of California Medical Department, San Francisco, 1898, member of the California Medical Association, aged 63, died, Dec. 23, 1932, of bronchopneumonia and influenza.

Robinson C. Dorr, Batesville, Ark., Missouri Medical College, St. Louis, 1883, member of the Arkansas Medical Society, fellow of the American College of Surgeons, formerly bank president, aged 74, died, January 29, of senility.

Yancey N. New, Danville, Ind., Kentucky School of Medicine, Louisville, 1893, member of the Indiana State Medical Association, aged 64, died, Dec. 20, 1932, in the Methodist Hospital, Indianapolis, of cerebral hemorrhage.

Albion Sullivan Marden, Newport, N. H., Dartmouth Medical School, Hanover, 1883, member of the New Hampshire Medical Society, aged 80, died, Dec. 6, 1932, in New Brunswick, N. J., of lobar pneumonia.

Benjamin Oscar Barber, Pownal, Vt., Cleveland Medical College, 1877, formerly superintendent of the town schools, school director, member of the board of health, and justice of the peace, aged 84, died, January 13.

Wesley Pitt Wells, Zanesville, Ohio, Medical College of Ohio, Cincinnati, 1877, also a druggist, at one time member of the city council and school board, aged 77, died suddenly, January 1, of cerebral hemorrhage.

Julian Carman Kennedy, San Francisco, University of Colorado School of Medicine, Denver, 1911, aged 47, died, Dec. 17, 1932, of cirrhosis of the liver, bronchopneumonia and thrombosis of the coronary artery.

Daniel L. McSwain ♂ Arcadia, Fla., Tulane University of Louisiana Medical Department, New Orleans, 1899, on the staff of the Arcadia General Hospital, aged 62, died, January 28, of coronary thrombosis.

Fisher Randall Clarke, Stockton, Calif., Kentucky School of Medicine, Louisville, 1891, member of the California Medical Association, aged 86, died, Dec. 12, 1932, of myocarditis and hypertrophy of the prostate.

Romeo E. Hyde, Plattsburg, N. Y., Albany (N. Y.) Medical College, 1868, Civil War veteran, formerly mayor of Plattsburg, aged 89, died, February 1, in the Physicians' Hospital, of bronchopneumonia.

Merton Price ♂ San Francisco, Stanford University School of Medicine, San Francisco, 1916, member of the Pacific Coast Oto-Ophthalmological Society, aged 44, died, Dec. 23, 1932, of influenza and lobar pneumonia.

Ibnsina Charles Anker, Modesto, Calif., Hahnemann Hospital College of San Francisco, 1892, College of Physicians and Surgeons, Chicago, 1894, aged 76, died, Dec. 14, 1932, of chronic myocarditis.

Ernst Ferdinand Foerster, Brooklyn, University of the City of New York Medical Department, 1894, member of the Medical Society of the State of New York, aged 64, died in February of heart disease.

Andrew Shuttleworth Reisor, Shreveport, La., Tulane University of Louisiana Medical Department, New Orleans, 1907, member of the Louisiana State Medical Society, aged 49, died, Dec. 9, 1932.

John E. Brennan ♂ New Milford, Conn., Georgetown University School of Medicine, Washington, D. C., 1905, on the staff of the New Milford Hospital, aged 52, died, February 9, of heart disease.

John Howard Nesbitt ♂ Dallas, Texas, Baltimore Medical College, 1905, served during the World War, connected with the Veterans' Administration, aged 52, died in December, 1932, of heart disease.

Malcolm Cameron, Retsil, Wash., Hahnemann Medical College of Philadelphia, 1881, Civil War veteran, aged 87, died Dec. 22, 1932, in the United States Naval Hospital, Bremerton.

Nelson D. Haskell, Buffalo, Cleveland College of Physicians and Surgeons, Medical Department of the University of Wooster, 1891, aged 82, died, January 23, of carcinoma of the prostate.

Adolph Hirschfield, Minneapolis, University of Minnesota Medical School, Minneapolis, 1893, member of the Minnesota State Medical Association, aged 68, died January 3, of heart disease.

Percy Bradford Lusk, New Orleans, Tulane University of Louisiana Medical Department, New Orleans, 1884, aged 72, died, January 25, of cerebral hemorrhage and edema of the lungs

William H Weaver, Canton, Ohio, Ohio Medical University Columbus, 1902, aged 58, on the staff of the Mercy Hospital, where he died, January 28, of carcinoma of the rectum

Louis d'Orville Chabut, Youngstown, Ohio, Jefferson Medical College of Philadelphia, 1890, veteran of the Spanish-American War, aged 76, died, Dec 4, 1932, in Jackson, Mich

Albert Matthias Freund, Cincinnati, State University of Iowa College of Medicine Iowa City 1888, aged 71, died, January 18, in St Francis Hospital, of auricular fibrillation

William Moller Schroeder, Newark, N J, University of Vermont College of Medicine Burlington, 1902, aged 54, died, Dec 13, 1932, in New Canaan, Conn, of angina pectoris

Harry Rolland Adams Ⓢ Onsted, Mich, College of Physicians and Surgeons, Keokuk, Iowa 1893, aged 65, died, January 26 in the Baby Hospital, Adrian, of heart disease

Joseph Dixon, Greenville, N C, Medical College of Virginia, Richmond, 1894, aged 68, died, January 21, in the Tucker Sanatorium Richmond, Va, of cerebral arteriosclerosis

Albert Ciegler Armitage, Hagler, Neb, Keokuk (Iowa) Medical College, 1891, member of the Nebraska State Medical Association, aged 69, died, January 3, of pneumonia

Joseph W Moffett, Oklahoma City, University of Texas School of Medicine, Galveston, 1898, aged 64, died, Dec 5, 1932, in St Anthony Hospital, of bronchopneumonia

Joseph Sherlaw, Chicago, Long Island College Hospital, Brooklyn, 1895 member of the Illinois State Medical Society, aged 72, died, February 13, of cerebral hemorrhage

Smith Davis Taylor, Gary, Ind, Louisville (Ky) Medical College, 1903, member of the Indiana State Medical Association, deputy coroner, aged 54, died, Dec 31, 1932

Julian Theodore Field, Fort Worth, Texas, University of Louisville (Ky) School of Medicine 1869, Confederate veteran, aged 86, died, Dec 25, 1932, of pneumonia

John N Quillin, Villa Grove Ill, College of Physicians and Surgeons, Keokuk, Iowa, 1884, aged 81, died, January 7, in Mount Vernon, Ohio, of cerebral hemorrhage

Ben L Bruner, Louisville, Ky, Hospital College of Medicine, Louisville, 1897, formerly bank president, at one time secretary of state, aged 60, died, Dec 15, 1932

John S Sennott, Waterloo, Ill, St Louis Medical College, 1883, member of the Illinois State Medical Society, aged 71, died, January 3, of bronchopneumonia

John U Hobach, Lancaster, Pa, University of Pennsylvania School of Medicine, Philadelphia, 1884, aged 77, died, February 1, of carcinoma of the stomach

Halbert Fletcher Neal, Meridian, Idaho, University of Nebraska College of Medicine, Omaha, 1903, aged 53, died suddenly, January 31, of angina pectoris

Herman Ellsworth Meeker, New York, Bellevue Hospital Medical College, New York, 1896, aged 66, died, January 14, of pneumonia and myocarditis

William Joseph Cooney, New Haven Conn, Yale University School of Medicine, New Haven, 1902, aged 57, died, January 22, of pulmonary tuberculosis

Thomas William Griffin, Woodstock, N B, Canada, Jefferson Medical College of Philadelphia, 1898, aged 58, died suddenly, February 6, of heart disease

William Harvey Hardin, Calhoun City, Miss, University of Tennessee Medical Department, Nashville, 1894, aged 81, died, January 20, of chronic nephritis

Hiram Craig Shouse, Plankinton, S D, Hahnemann Medical College and Hospital, Chicago, 1872, Civil War Veteran, aged 88, died, January 16, of uremia

Irwin Arthur O'Connor, St Paul, University of Minnesota Medical School, Minneapolis, 1923, aged 34, died, Dec 25 1932, of influenza and pneumonia

Jacob Benjamin Baruch, Jr, Detroit, Michigan College of Medicine and Surgery, Detroit, 1903, aged 72, died, January 2, of uremia and prostatic obstruction

Martin Dowling, Zeist, Netherlands, University of the City of New York Medical Department, 1895, aged 60, died suddenly, January 14, of heart disease

Lucien Winslow Gordon, Equality, Ill, Miami Medical College, Cincinnati, 1880, aged 74, died, January 8, of paralysis agitans and capillary bronchitis

Louis Henry Kraus, New York, New York Homeopathic Medical College and Flower Hospital, New York, 1915, aged 67, died, Dec 22, 1932

Daniel Webster Palmer, Cape Charles, Va, Leonard Medical School, Raleigh, N C, 1904, aged 55, died, Nov 10, 1932, of cerebral hemorrhage

Enoch Merrill Miller, Glendale, Calif, Kansas City (Mo) Hahnemann Medical College, 1903, aged 53, died, Dec 27, 1932, of chronic myocarditis

Frederick Arnold Brandt, Sturgis, S D, Washington University School of Medicine, St Louis, 1904, aged 51, died, in January, of heart disease

James Valarus Bonnette, Alexandria, La, Kentucky School of Medicine, Louisville, 1893, aged 67, died, January 25, of cerebral hemorrhage

John Crawford, Santa Paula, Calif, Columbus (Ohio) Medical College, 1887, aged 72, died, Dec 15, 1932, of acute cholecystitis and peritonitis

William John Shields, New York, Long Island College Hospital, Brooklyn, 1897, died, January 18, in a hospital at Sarasota, Fla, of nephritis

Henry F Askam, Atlanta, Ga, University of Louisville (Ky) School of Medicine, 1880, aged 78, died suddenly, January 19, of angina pectoris

Herbert P Morrey, Santa Barbara, Calif, Keokuk (Iowa) Medical College, 1893, aged 72, died, Dec 12, 1932, of arteriosclerosis and hypertension

Henry R Ressel, South Haven, Mich, Medizinische Fakultät der Universität Wien, Austria, 1892, aged 67, died, January 22, of heart disease

Frederick Augustus McClain, Bessemer, Ala, Louisville (Ky) Medical College, 1894, aged 60, died, January 8, of carcinoma of the esophagus

Susan Dew Hoff, West Milford, W Va (licensed, in West Virginia, under the Act of 1889), aged 90, died, January 2, of cerebral hemorrhage

George Alonzo Mershon Ⓢ Marshalltown, Iowa, Physio-Medical Institute, Cincinnati, 1882, aged 80, died, Dec 20, 1932, of chronic colitis

William Preston McGlenn, Louisville, Ky, Hospital College of Medicine, Louisville, 1878, aged 76, died, January 22, of aortic regurgitation

William S Richardson Ⓢ Williamsport, Md, College of Physicians and Surgeons, Baltimore, 1890, aged 76, died, Dec 29, 1932, of influenza

George Smieding, Tampa, Fla, Rush Medical College, Chicago, 1900, aged 56, was found dead, January 26, of a self-inflicted bullet wound

John D Nuchols, Benton, Tenn, Tennessee Medical College, Knoxville, 1891, aged 64, died, Dec 31, 1932, of pneumonia and paralysis

Rensselaer Jewett Smith, Milpitas, Calif, University of the City of New York Medical Department, 1884, aged 74, died, Dec 13, 1932

Charles W McCollum, Bullsgap, Tenn, Louisville (Ky) Medical College 1892, aged 68, died, Dec 7, 1932, in a hospital at Greenville

Homer Lee Kulenwider, Los Angeles, Medical College of Indiana, Indianapolis, 1904, aged 61, died, Dec 7, 1932, of pulmonary edema

Martin Gonzalez, Laredo, Texas, Escuela de Medicina de Nuevo Leon, Monterrey, Mexico, 1877, aged 82, died, Dec 23, 1932, of influenza

Charles Egan, Highland, Wis, Rush Medical College, Chicago, 1875, aged 84, died, January 23, of chronic myocarditis

John T Murray Ⓢ Manchester, N H, Baltimore University School of Medicine, 1898, aged 64, died, Dec 16, 1932

Benjamin D Brown Ⓢ Apache, Okla, Hospital College of Medicine, Louisville, Ky, 1898, aged 62, died, Dec 25, 1932

Julius B Manley, North Los Angeles, Calif, Eclectic Medical Institute, Cincinnati, 1889, aged 75, died, Dec 2, 1932

Lewis E Haskins, Alaska, Mich (licensed, in Michigan by years of practice), aged 87, died, January 25, of senility

George V Hilton, Lowell, Mass, Detroit Medical College, 1876, aged 81, died, January 13, of bronchopneumonia

Edmond J Bowles, Chicago, Chicago Medical School, 1923, aged 53, died, February 7, of acute myocarditis

Joseph E Baynes, Troy, N Y Albany (N Y) Medical College, 1886, aged 68, died, Dec 21, 1932

Correspondence

USE OF INHALATIONS OF CARBON DIOXIDE TO PREVENT POSTOPERATIVE PUL- MONARY COMPLICATIONS

To the Editor—Less than five years ago Coryllos and Birnbaum, on the basis chiefly of experimental observations, announced the exceedingly important and illuminating doctrine that obstruction of the bronchi is the condition that commonly induces postoperative pulmonary complications. From clinical observations at about the same time Scott and Cutler reported that hyperventilation with carbon dioxide after operations, as recommended by Henderson, Haggard and Coburn, greatly diminishes pulmonary complications. It is this and other clinical demonstrations of the fact that clearing the bronchi tends to prevent subsequent complications which establishes the critical importance of bronchial obstruction. Without this therapeutic or prophylactic benefit, that doctrine would be merely a brilliant hypothesis.

There appears to be at present a general acceptance of this doctrine, combined illogically with a failure to realize that doctrine and evidence stand or fall together. This confusion is shown in a paper in *THE JOURNAL*, January 7, from the Massachusetts General Hospital, by Dr D S King.

Dr King starts out in his paper to test the efficiency of carbon dioxide as a preventive of postoperative pulmonary complications. In his first series of observations during four months, the number of complications in the treated cases was far below that for the untreated cases. It then occurred to him that, as the purpose of carbon dioxide inhalation is to clear the bronchi and inflate the lungs, perhaps the production of bronchial drainage by frequent change of posture would also be effective. From then on for several months all of the so-called control subjects were given the benefit of postural change. The result was that the treated cases and the untreated controls showed nearly similar results. Although no amount of study has been able to explain away the first and only well controlled series of cases, the practical conclusion, based apparently on the second series, is that "In the Massachusetts General Hospital, therefore the routine use of carbon dioxide as a preventive measure against postoperative pulmonary complications has been discontinued and the search for a more effective method is still being pursued." Whether the equally effective or ineffective method of postural change has also been discontinued is not stated. Support is however expressed for the view that immediate postoperative deetherization with carbon dioxide may cause a deeper inhalation of bronchial secretion and so perhaps do harm—a conception offered wholly without evidence and contrary to practically the entire weight of the experience of all competent anesthetists.

Obviously the evidence from the second series of cases controlled by other cases in which bronchial drainage was promoted by frequent postural changes proves little or nothing regarding the ostensible object of the investigation. The underlying assumption involved in the discussion is however of great importance. It is that obstruction of the bronchi is the common cause of postoperative pulmonary complications. This doctrine is evidently assumed to be so well established and so obvious as to be sufficiently tested by comparison of two procedures both of which are based on this doctrine. Yet Dr King, on the basis of his tests, rejects one of these procedures and does not indicate that the other is any better.

It is certainly to be hoped that Dr King succeeds in his pursuit of a more effective method of applying this doctrine than either of those now available. But as that pursuit may perhaps take him some time, why reject such means as are

now available and such as Dr King's own observations in his first series of experiments show to be effective, for clearing the bronchi, inflating the lungs, inducing drainage and preventing postoperative pulmonary complications?

It is at least evidence of the enormous progress during the past five years in this field, in which there was formerly a considerable mortality, that surgeons now face responsibility for the postoperative period—a responsibility that was quite ineffective so long as such developments as postoperative pulmonary complications were entirely obscure and their outcome therefore wholly "in the hands of God."

YANDELL HENDERSON, PH D, New Haven, Conn

[A copy of Dr Henderson's communication was sent to Dr King, who replies.]

To the Editor—In reply to Dr Yandell Henderson's comment on my paper on the use of carbon dioxide as a preventive of postoperative pulmonary complications, I should like to restate my position as follows.

1 I have no desire to minimize the importance of adequate postoperative bronchial drainage. I believe that the concept of bronchial obstruction and atelectasis answers many, though by no means all, of the questions arising in connection with postoperative pulmonary complications.

2 I conclude from my series that bronchial drainage by either postural change or carbon dioxide inhalation prevents a certain proportion of complications, and that one method is no more effective than the other, but that since postural change is easier and less expensive it is the method of choice. It is still being used at the Massachusetts General Hospital.

3 So far as the use of carbon dioxide is concerned, I disagree with Dr Henderson as to what constitutes clinical evidence of its value. In my paper I analyzed all the articles quoted by him as proving its usefulness. In my opinion, none of these authors present satisfactory evidence in the form of an adequately controlled series.

4 Dr Henderson fails to note that the point that "no amount of study has been able to explain" is the record for one month only, February, and if it were not for this one month there would be little evidence in my series of the value of carbon dioxide, even when the controls were not having postural change. The month of February was also one in which the treated group received very little hyperventilation.

5 As to the use of carbon dioxide for deetherization in the operating room, it should be noted that we had used this method for seven months previous to the study under discussion. During this period, pulmonary complications developed in 13.1 per cent of the laparotomies and herniorrhaphies, a higher figure than we had ever recorded before. We therefore had a right to fear that this procedure might be doing harm.

DONALD S KING, M D, Boston

ETIOLOGY OF WHOOPING COUGH

To the Editor—The present communication was inspired by the appearance in your editorial columns during the past six weeks of two comments on the etiology of whooping cough (*THE JOURNAL*, Nov. 26, 1932, p. 1866 and Dec. 17, p. 2115). Most of our knowledge of the bacteriology and serology of whooping cough has come from Europe, yet in your columns, widely read in Europe, such foreign data are not mentioned.

Thorvald Madsen (*Boston M & S J* 192:50 [Jan. 8] 1924) summarized the work of his staff at the Danish National Serum Institute in the Cutler Lecture given at Harvard University Medical School in 1924. He described the results obtained with the "cough plate" of Chievitz and Meyer (*Ann de l'Inst Pasteur* 30:503 [Oct.] 1916), which has now been used for sixteen years as a routine diagnostic procedure in Denmark.

The acceptance of this procedure by the Danish medical profession is based on three facts

1 The close association of the Bordet-Gengou bacillus with cases of whooping cough (The best Danish figures of 88 per cent are exceeded by those of Sauer and Hambrecht [*THE JOURNAL*, July 26, 1930, p 263], who obtained 98 per cent positive plates in the catarrhal stage)

2 The absence of the organism in the cough droplets of 1,000 healthy children and adults who were not in contact with cases of pertussis (Kristensen, Bjørn Thesis "Om Forekomsten af Bordet-Gengou's Bacil," from Statens Seruminstitut, Copenhagen, 1932)

3 The great frequency with which the organism is isolated in the catarrhal stage the time observed to be most contagious, and the subsequent diminishing frequency which parallels the observed degree of communicability

The Danish medical profession has also accepted as an occasionally useful procedure the complement fixation test with the Bordet-Gengou antigen. Because of this late appearance of the complement fixing antibodies, the test is obviously resorted to only in cases of atypical chronic coughs

Probably the most encouraging results obtained with vaccines of the Bordet-Gengou bacillus are those recorded by Madsen in Copenhagen and in the Faroe Islands. During the past few years further data have been collected in Denmark on the effect of vaccine in preventing or modifying an attack of the disease. This material has not yet been published but with Dr Madsen's consent I may report that the results obtained are comparable with the Faroe Islands success. I am well aware that such experiences have not been duplicated often and that pertussis vaccines have been removed from New and Nonofficial Remedies. It is logical to suppose that the wide diversity of the results obtained with this agent is in a measure dependent on the diversity of the mode of preparation. Leslie and Gardner (*J Hyg* 31 423 [July] 1931) have presented evidence that the Bordet-Gengou bacillus passes rather rapidly through a series of antigenically distinct phases when grown on artificial mediums. They found that recently isolated strains in "phase I" were alone reliable for the production of active immunity in guinea-pigs. The Danish vaccine has always been prepared from strains less than three weeks old. It is obvious that a vaccine containing from ten to twenty such strains can be prepared only in a laboratory in which new strains are received daily, namely, in a "cough plate" diagnostic station.

In addition to their contributions on the antigenic phases of the organism in question, Gardner and Leslie (*Lancet* 1 9 [Jan 2] 1932) reviewed the entire subject one year ago. These Oxford bacteriologists conclude "There is no longer any room for doubt that the bacillus of Bordet and Gengou is the true and sole cause of whooping cough." Certainly not all investigators feel quite so positive. Those who have read the report of Brown (*Bull Johns Hopkins Hosp* 38 147 [Feb] 1926) in which is described a case simulating pertussis from which *Brucella bronchiseptica* (and not *Haemophilus pertussis*) was isolated might qualify this pronouncement by substituting "the common cause" for "the true and sole cause." McCordock's (*Proc Soc Exper Biol & Med* 29 1288 [June] 1932) recent observation of intracellular inclusion bodies in the lungs of patients with pertussis is stimulating. Whatever their explanation may eventually prove to be, it must be accompanied by an explanation of the association of *H. pertussis* with the disease. The recent investigations of Rich, Long, Brown, Bliss and Holt (*Science* 76 330 [Oct 4] 1932) appear to confirm the older work of Frankel (*Munchen med Wchschr* 55 168, 1908), Inaba (*Ztschr f Kinderh* 4 252, 1912) and Sauer and Hambrecht (*Am J Dis Child* 37 732 [April] 1929). These earlier investigators produced a syndrome simulating whooping cough in monkeys by the administrations of Bordet-Gengou bacilli.

In the light of these references to foreign work and foreign views, the leading sentence of your second editorial is inadequate

The editorial said "The current assumption that whooping cough is caused by the Bordet-Gengou bacillus and that prophylactic immunization with the corresponding Bordet-Gengou vaccine is justifiable is based solely on clinical impressions." I affirm that the assumption of the etiologic role of the Bordet-Gengou bacillus is based on far more than clinical impression. The examinations of thousands of cough plates and hundreds of serums from children with and without whooping cough over a period of sixteen years does not yield "clinical impression" but rather facts which would convict the Bordet-Gengou bacillus on circumstantial evidence in a court of law, if not in a court of medicine.

J. J. MILLER, JR., M.D. Copenhagen, Denmark
National Research Council Fellow in
Medicine Statens Seruminstitut

SODIUM THIOCYANATE (RHODANATE) AND THE THEORY OF AGGLOMERATION

To the Editor—A timely editorial comment in *THE JOURNAL*, Dec 31, 1932, page 2270, calls attention to the extraordinary advertising and clinical activities of Prof Wilder D Bancroft of Cornell University. It is unfortunate that the comment did not go on to indicate the equally extraordinary character of Professor Bancroft's alleged scientific investigations into the colloid chemistry of anesthesia, disinfection, sleep, the central nervous system, insanity, drug addiction, and many other difficult medical propositions—such as anaphylaxis and strychnine poisoning. These publications by Professor Bancroft and his pupils have appeared since 1930 in the *Proceedings of the National Academy of Science* (of which Professor Bancroft has long been a member) and the *Journal of Physical Chemistry* (which Professor Bancroft founded and edited), and of course they have been prominently featured by the public press. Perusal of these many papers reveals a number of remarkable features common to them all: (1) an astonishing ability to argue a priori in support of a preconceived idea, (2) a regrettable paucity of adequate experimental data to support the voluminous "conclusions" drawn, and (3) an interesting selection of statements taken from biologic literature to help the argument. Average second year medical students on whom I made the test could see how ridiculous, though plausible, an able physical chemist may become when he ventures to indulge in interesting speculations in a biologic field in which he has had inadequate training and experience.

There is no objection to Professor Bancroft amusing himself in biologic speculation. But one may justifiably object when he claims scientific validity for what is certainly speculative on his part, even though he may try to disguise it by plausible argument, superficial experimentation, and selected reference to scientific literature.

Professor Bancroft's speculations on narcosis have been critically examined and judiciously demolished by V. E. Henderson and G. H. W. Lucas, pharmacologists at the University of Toronto (*J Pharmacol & Exper Therap* 44 253 [Feb] 1932). To their direct experimental refutation of Professor Bancroft's notion that sodium thiocyanate (rhodanate) may antagonize sodium amytal, ether or morphine narcosis, I would like to add my failure on four trials to confirm Professor Bancroft's reported experimental antagonism between sodium thiocyanate and morphine in rabbits. I repeated in detail the experiment described by Professor Bancroft in his paper "The Colloid Chemistry of the Nervous Systems. I. Sodium Thiocyanate Therapy" (*J Physical Chem* 35 1185-1211 [May] 1931, p 1195). I found that the administration of sodium thiocyanate in the manner and amount described by Professor Bancroft definitely did the opposite of what was claimed by him, that is, I found that it *increased* the real narcosis of the morphinized rabbit, in comparison with the control, and that the narcosis

lasted longer than in the control. It is true that at the moment of sodium thiocyanate injection the morphinized rabbit showed evidence of irritation. Sodium thiocyanate is a local irritant. Also it causes methemoglobin formation.

Further experimental refutation of Professor Bancroft's thesis has been furnished by H. E. Guerlac (*Proc Soc Exper Biol & Med* 30 265 [Dec.] 1932). Guerlac found that sodium thiocyanate instead of antagonizing the toxic action of ethyl urethane on the developing eggs of *Arbacia punctulata* definitely increases its lethal effect.

The untoward results of potassium thiocyanate therapy in human beings, especially when used in hypertension, are known to clinicians. There is no reliable evidence to show that sodium thiocyanate may be considered much less toxic. There is no excuse for physicians to employ sodium thiocyanate as proposed by Professor Bancroft on the unconfirmed and unsatisfactory evidence offered by him. While Professor Bancroft may deserve some credit for reproposing on speculative grounds Claude Bernard's coagulation theory of narcosis, it is reprehensible for him to claim scientific validity for the application of his notions to medical fields.

CHAUNCEY D. LEAKE, PH.D., San Francisco
Professor of Pharmacology, University
of California Medical School

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

PITUITARY DYSFUNCTION

To the Editor—Please state what kind of mental and nervous disturbances occur with hypofunction of the pituitary body and also if known the differences in hypoanterior pituitary secretion and hypoposterior pituitary function. MATTHEW KARASEK, M.D., Shidler, Okla.

ANSWER—Epileptiform seizures occur in animals after partial removal of the pituitary, and epilepsy is said to be a frequent accompaniment of clinical conditions in which an insufficiency of the pituitary, either of the anterior lobe or of both lobes, is manifest. These seizures sometimes have uncinate gyrus features, that is, disturbances of taste and smell accompany them. Inhabitants of epileptic colonies at least in Illinois, show many features indicative of a deficiency of the growth and sex hormone of the anterior lobe during their growing years.

A deficiency of the anterior lobe occurring in preadolescent years is frequently accompanied by mental attainments quite up to normal and sometimes by precocity. Later there tends to be a slowing down of these processes and in adult years there is a general retardation of mental processes accompanied by somnolence, though the latter may be due to a thyroid deficiency which seems to occur as a sequel to pituitary deficiency of long standing.

A deficiency of the growth and sex hormone in preadolescent years results in a lack of development in these spheres. It predisposes the victims to inferiority complexes because of their physical and sexual handicaps.

The acidophilic cells of the anterior lobe elaborate a growth hormone which has a powerful influence in the growth and development of the skeletal system and the voluntary muscles, a sex hormone—or maybe two or three of these—which has to do with the development and function of the sexual apparatus. It is not certain whether there is one sex hormone or more elaborated by the basophilic cells of the anterior lobe. Whatever the number of the sex hormones, their function is fairly well understood. They first stimulate the graafian follicles to complete maturation. This is said to be due to prolactin A or rho I. They initiate or stimulate the development of the corpus luteum and the production of its hormone, progesterone. This is brought about by the luteinizing hormone, prolactin B or rho II. The anterior lobe is referred to as the motor of the ovary. There is probably another hormone or it may be the sex hormone which has to do with the stimulation of testicular. German workers assert that they have isolated a

fat metabolism hormone. The anterior lobe has a profound influence on the thyroid, parathyroid and suprarenal cortex. This influence is probably exerted by the basophilic cells. In addition to the growth and sex hormones, the anterior lobe is also thought to have considerable influence in controlling body temperature.

The posterior lobe presides over carbohydrate and water metabolism and is concerned with the contractions of the involuntary muscles and the secretion of urine. A deficiency of this lobe is believed to be responsible for the polydipsia, polyphagia and polyuria so often seen in pituitary deficiency. Extract of posterior lobe gives the greatest possible relief in diabetes insipidus. The pars intermedia is more closely allied with the posterior lobe. It has lately been thought to elaborate a hormone controlling, or at least concerned with, pigment metabolism.

Overgrowth and hyperfunction of the anterior lobe, occurring in adult years and accompanied by signs of acromegaly, are associated first with nervousness and irritability. Later periods of depression occur. The nervous manifestations may be due to an infringement of the tumor on neighboring structures and to pressure on and consequent paralysis of various cranial nerves. A tumor of the chromophobe cells of the anterior lobe is a space-occupying lesion which leads to signs of pituitary deficiency, such as menstrual disturbances, accumulation of obesity, somnolence and loss of body hair. Small basophilic adenomas recently reported by Cushing are accompanied by obesity, involving the head, chest and trunk, vascular hypertension, and purplish lineae striae. They are associated with hypertrichosis and amenorrhea and acrocyanosis with cutis marmorata of the extremities. It is often accompanied by hyperglycemia and occasionally by polycythemia. A peculiar softening of the bones of the skeleton has been commonly found at necropsy. Cushing is of the opinion that this is not an uncommon syndrome.

TUBERCULOSIS AND WASSERMANN FAST SYPHILIS

To the Editor—A white woman aged 25, who has far advanced pulmonary tuberculosis with involvement of both lungs has been under my care since June, 1930. Her Wassermann reaction, June 18, 1930, was four plus. Since then she has had thirty-four injections of nearsphenamine (the first twenty of which were of 0.6 Gm. each, the last fourteen of 0.4 Gm. each), nine intramuscular injections of a bismuth compound 3 grains (0.2 Gm.) of metallic bismuth, and seventy mercury rubs of 1 drachm (4 Gm.) each of the official 50 per cent mercury ointment. She has just finished a six weeks course of mercury rubs included in the foregoing. Her Wassermann reaction April 12, 1932, was three plus, and has been negative only once, May 28, 1931, since treatment was begun. Spinal fluid examination Jan. 10, 1932, showed the Wassermann reaction negative and a cell count of 6. A colloidal gold and globulin estimation were not done. Her tuberculosis has improved clinically and on roentgen examination. She has gained 24½ pounds (11 kg.) and for the last two months the temperature has ranged from 99.2 to 99.4 F. in the afternoon. Her only symptom or sign referable to the central nervous system is an occipital headache worse at night for the last three years but somewhat better for the last six months. The cardiovascular examination is essentially negative, the blood pressure being normal, there is no cardiac enlargement, no accentuation of the aortic second sounds nor murmurs. What further procedure would you recommend at this time in order to reverse the Wassermann reaction to negative? Do you consider it absolutely essential to reverse the Wassermann reaction? Do you consider this a case of malignant syphilis or a defense mechanism on the patient's part? When would you reexamine the spinal fluid? And last, what effect do you think the tuberculosis has on the syphilitic infection? Please omit name and city. M.D., North Carolina

ANSWER—The only positive clinical sign that might bear a relationship to this patient's syphilis is the occipital headache. In the absence of any other clinical evidence of visceral degeneration, apart from the pulmonary tuberculosis, that might be attributed to latent syphilis and be contributing to the persistent positive Wassermann reaction, this headache must be regarded with suspicion as possibly being a part of an early neurosyphilis. Although the spinal fluid is now negative it should be watched along with the blood Wassermann between courses, in order to note any early serologic or cytologic changes in addition to the colloidal gold and globulin tests.

Further procedure should consist in varying the therapeutic approach by the use of bismuth arsenic sulphonate or a liposoluble bismuth preparation to attempt serologic reversal. If this is not successful the use of small doses of arsphenamine in conjunction with a soluble bismuth preparation might be considered if the pulmonary condition does not show any signs of activity. If conservative dosage of these drugs in courses in the order named do not accomplish reversal of the Wassermann reaction the patient should be given a long rest period during which time she should be closely observed clinically for any visible evidence of syphilitic involvement in any of the organ systems, especially the nervous and cardiovascular. If the patient remains symptom free and in good general

health with a persistently positive Wassermann reaction in spite of mixed continued treatment, its absolute reversal is not essential as long as the patient is carefully and regularly observed clinically.

Every case of Wassermann-resistant syphilis is probably one of a grave infection and it is necessary to consider the case from every aspect before considering the fixed reaction an insignificant one.

The tuberculosis is no doubt a factor in contributing to a low constitutional tone on the part of the patient, which may be a factor in the lessened response to chemotherapy. The tuberculous infection also precludes the use of the iodides in the mixed therapeutic regimen and also calls for greater caution in dosage of the drugs used, thereby lessening to a certain degree the intensity of the therapeutic attack.

HOARSENESS AFTER AMMONIA POISONING OR PARALYSIS OF VOCAL CORD

To the Editor—I am writing to ask you about the compensation aspects in the case of a man who was injured here ten months ago by inhaling ammonia vapor and who has not talked above a whisper since that time. This man, aged 63, a yard laborer has been under my observation for the last twenty one months. Previous to this he was working as janitor at one of the mines at an altitude of 6000 feet and had an attack of subterminal pneumonia which lasted several days and which was diagnosed as a coronary thrombosis by his physician. Following recovery he went to work at the lower camp here at an altitude of 2,100 feet at a light job. When I first saw him in January, 1931, he gave the additional history of a cough which he had had for two years and a goiter which he had known of for about six years. He had been accustomed to an active outdoor existence all his life with the exception of about three years when he was doing the janitor work. His throat showed the reddening of a chronic pharyngitis. There was a large, firm goiter. The superficial veins of the abdomen and chest, especially on the right side, were prominent. The heart sounds were regular and normal, as were the breath sounds. Palpitation of the abdomen gave negative results, as did rectal examination. One testicle had been removed because of an injury received several years before. He weighed 132 pounds (60 Kg). Blood pressure in the right arm was 154/88, and in the left 140/80. Urine examination gave negative results, as did the Wassermann and Kahn tests. A roentgenogram of his chest showed a deviation of the trachea and a widening of the arch of the aorta. With this history and examination in mind I considered the possibility of his having an aneurysm, although the goiter may well be responsible for his cough. During the following summer, a more marked huskiness in his voice developed. In the fall he lost the light job he had and became a yard laborer. Since that time I have seen him do some pretty heavy work without any ill effects, so have come to doubt my diagnosis of an aneurysm. In January, 1932, he was working in a room when an ammonia pipe was accidentally broken and he inhaled a considerable amount of gas before he was removed. He was brought at once to the hospital, where he stayed for about two weeks. He had a marked tracheitis and bronchitis and was treated at first with oxygen and later with benzoin inhalations, hot drinks, acetylsalicylic acid and other measures for the laryngitis, including resting his voice. Fearing the possibility of an esophageal stricture, I had him swallow a thread, but he overcame the difficulty in swallowing in a few days. After his discharge from the hospital he continued vapor inhalations and sprays for a month or more and then came regularly to the office, where I gave him laryngeal inhalations. He was on a tonic of strychnine for a long time. He was an inveterate talker and it was a hard job to try and keep him from whispering. I examined him last in June, at which time he had redness of the epiglottis, paralysis of the right vocal cord, and chronic pharyngitis. I saw him last a few days ago, when he left here. His voice was still a whisper. Could the laryngitis be the result of ammonia poisoning? In my opinion it is from his goiter with a resultant paralysis of the recurrent laryngeal nerve. I have not a large library at hand to look up the subject but from what I can find the results of ammonia poisoning do not last long. Another man, younger, who was injured at the same time as this one, recovered and was back to work the day after. Also, I have not found any reference as to compensation for loss of voice. It is not mentioned in the Alaska statutes, which are modeled after those of Oregon. If you can give me any references as to the compensation phase of this injury, I shall appreciate it. Please omit name.

M D, Alaska

ANSWER—It is not stated whether the patient's larynx was examined prior to the inhalation of ammonia. Had there been a paralysis or paresis of the right vocal cord present prior to this accident, one could attribute the hoarseness to the acute laryngitis set up by the irritant. A cord already moving poorly would be impaired still further, as would the opposing healthy cord. Such a state of affairs could not last long, however, as several weeks would suffice to clear up this condition. One cannot dismiss the fact that a roentgenogram of the chest shows a deviation of the trachea and a widening of the arch of the aorta. The patient has in addition a large thyroid gland. Either the aneurysm or the goiter or both together may be responsible for the paralysis of the right vocal cord and the concomitant hoarseness. Hoarseness lasting longer than six months should not be considered as due to exposure to ammonia. As regards compensation for loss of the voice inquiry seems to show in Illinois at least no stated sum. The general principle

covering a case of loss of voice which is permanent would appear to be that compensation is due if the individual must change his occupation to one yielding less income. The exact amount of compensation would depend on the loss of income.

RELATION OF THYMOL TO THYROID IRRITATION

To the Editor—I have recently seen in the *Ars Medici* (the journal of the American Medical Association of Vienna) an article stating that thymol produces as much thyroid irritation as iodine, even so small a unit as found in tooth pastes such as Euthymol or Listerine. Will you kindly give an opinion on this important subject? (The warning appeared in the *Medizinische Klinik*, April 1, 1932, p 477, it was not abstracted in THE JOURNAL.) WALTON S. SHEPHERD, M D, Charleston, W Va

ANSWER—In the article in the *Medizinische Klinik*, entitled "Warnung vor Thymol und thymolhaltigen Mitteln, Mund-Wassern und Zahnpasten bei Kropfkranken," Prof Ernst Edens of Dusseldorf reports six cases of thyrotoxicosis. Two of the patients were men and four women, and all had for a considerable time used a mouth wash containing thymol, such as Listerine, or a tooth paste containing thymol (Kolynos tooth paste). He reported two cases in 1917 in the same journal (13 807). He has therefore found eight cases in fifteen years which he concludes were due to thymol or were accentuated by its use.

Edens states that his attention was drawn to the possible effects of thymol from reading the report of Robert McCarrison entitled "Further Researches on the Etiology of Endemic Goiter" (*Quart J Med* 2 279, 1908-1909). In this article McCarrison states that endemic goiter is due to a living organism and can be cured by the administration of intestinal antiseptics, notably by thymol. This drug also caused a decrease in the size of the thyroid.

From the photographs in McCarrison's work, Eden drew the conclusion that thymol in some cases caused untoward effects and might cause hyperthyroidism. The cases he reports support this conjecture. The only treatment needed in such cases is cessation of the use of the mouth wash or tooth paste containing thymol. When this use was discontinued, the patients recovered.

His conclusions may be correct, but the report creates the impression of *post hoc ergo propter hoc* logic. In no case has Eden again administered thymol to patients who have been cured, to verify his conclusions. On the other hand, it cannot be said certainly that thymol may not in some cases cause such a condition. It is possible, but it seems improbable.

Thymol is a phenol. Thyroxine is an iodized phenol derivative, but there is no evidence except that given by Eden that thymol may cause an increase in thyroxine or that, by itself, thymol has any thyroxine action or other effect on the thyroid.

Because of the widespread use of thymol in the treatment of hookworm disease and in mouthwashes, it seems that any such action would have been observed long ago. This opinion, however, should not prevent observation and study of such possibility.

Eden reports these cases as a warning. The physician, he says, should think of the possibility of thymol doing harm and make inquiries concerning the use of medicines and beverages of unknown composition.

DERMATITIS IN INDUSTRY

To the Editor—A local industrial plant engaged in printing cloth has been having some trouble as the result of a dermatitis developing on the forearms and hands of the employees, particularly new ones. These men use rubber gloves while working in the chemicals and dyes known to them as "vat colors," "naphthol salts" and "aniline black." The chemicals used are acetic acid, stearic acid, ammonium hydroxide, denatured ethyl alcohol, aniline hydrochloride, aniline oil, glycerin, glycerin, pine oil, paraphenylenediamine, rongalite (sodium sulfoxylate formaldehyde), soda ash (contains about 3 per cent caustic soda), chlorate of soda, yellow prussiate of soda, caustic soda, tannic acid, chlorinated lime potassium carbonate, zinc oxide and chrome (sodium bichromate). The vat colors used are naphthol salt colors, basic colors, rapidogen colors and aniline black. If you can give me the benefit of any study you have carried out or experiments done by any of the Eastern centers where they have had an opportunity to study such cases, I shall greatly appreciate the information.

JAMES L. ANDERSON, M D, Greenville, S C

ANSWER—Almost without exception, the several substances listed in this query have individually been charged with the causation of skin diseases under industrial conditions. Although no mention is made of the quantities of any one substance, it is presumed from a general knowledge that some are in such traces as to be below the threshold of practical damage, except on the basis of sensitization. Recently, the contention has been made that all industrial dermatitis is allergic in nature. In addition, the rubber gloves used for protection may be the source of injury. In an article on industrial dermatoses in

THE JOURNAL, Sept. 17, 1932, Osborne and Putnam related their observation that accelerators in rubber curing may cause dermatitis in the glove wearer. Aside from activities in any particular centers, reference may be made to the following recent publications:

- Knowles F C Trade Dermatoses, *Bull Am A Indust Phys & Surg* 6:7 (Feb.) 1932
 Lloch B Occupational Skin Diseases from the Biological Point of View *J State Med* 38 373 (July) 1930 abstr *J Indust Hyg* 12 226 (Dec.) 1930
 McCord C P What Determines Compensability for Skin Diseases Among Industrial Workers? *Proc Internat A Indust Accident Boards and Commissions* 1932 Bureau of Labor Statistics Department of Labor Washington D C
 White R P Modern Views on Some Aspects of the Occupational Dermatoses *J Indust Hyg* 8 367 (Sept.) 1926
 Sulzberger M B and Wise Fred The Contact or Patch Test in Dermatology Its Uses Advantages and Limitations, *Arch Dermat & Syph* 23 519 (March) 1931

The abstract section of the *Journal of Industrial Hygiene* contains general discussions of these and related matters.

The suggestion is made that workers repeatedly exhibiting a dermatitis be patch tested by means of the technic mentioned in several of the cited publications. If mixtures of several dyeing solutions cause the dermatitis, further tests should be carried out with individual constituents, until the ultimate cause or causes are disclosed. It is predictable that more than one substance will prove to be the offenders. Paraphenylenediamine is a common source of dermatitis and asthma.

PINWORMS

To the Editor—A girl aged 11 has had pinworms for the last four years. She was hospitalized for two weeks once, at which time she received santonin by mouth and dilute mercuric chloride by rectum. The worms returned in a few days. She has been treated with santonin and a proprietary remedy by mouth at different times and with quassia, potassium permanganate and lime water by rectum at different times all to no avail. She had acute appendicitis two months ago and in the appendix were found many pinworms. Ether was the anesthetic used. For two weeks following the operation no worms were seen. Since that time they have returned in borders. Those that appeared at the rectum are much tougher and larger than those that were found in the appendix. Another santonin and quassia course of treatment was given to no avail. I should like to know why there was an apparent disappearance for two weeks following the operation. Can you suggest another mode of treatment? Please omit name.

M D Maryland

ANSWER—Possibly cecal stasis following the appendectomy might explain the temporary absence of the worms. The rectal administration of 4 ounces of a strong salt solution (2 tablespoonfuls of salt to a pint of water) injected at the time when itching is felt will not only relieve itching but also help in the destruction of the worms that have found their way into the rectum. It is useless to inject the salt solution when the pruritus is not felt. To secure ultimate eradication of the worms, prevention of auto-infestation is the most important item, as the vicious circle that perpetuates the infestation consists of itching due to the wriggling movements of the gravid females followed by scratching and contamination of fingers, through them of food the ingested ova hatching in the duodenum the worms living in the cecum and descending into the rectum for the purpose of laying eggs. Hence the hands must be washed thoroughly every time the surface of the body or an undergarment is touched. The wearing of closed drawers will help to prevent scratching of the anal region. Any laxness in scrupulous avoidance of contamination of the fingers with the invisible eggs is liable to be followed by vexatious reinfestation.

POST TRAUMATIC SPONDYLITIS

To the Editor—I have a patient a farmer aged 30 who fell on his shoulders in April 1931. For three days he had severe pain in his back after which the condition cleared up somewhat. Then in a few weeks he began having pain in the lower part of his back and in his left leg. The pain all disappeared on lying down. A roentgenogram taken recently shows a compression fracture of the fifth lumbar vertebra. I have put him to bed with his back arched slightly and he is quite comfortable. How long should I leave him there and what kind of a brace should he wear when he does get up. What is the prognosis as to complete freedom from pain. Please omit name and address.

M D Illinois

ANSWER—This may be a case of Kummel's disease or post-traumatic spondylitis. It is questionable what would have been disclosed if roentgenograms had been made in two projections immediately after the accident.

The pain in the patient's leg is evidently due to so-called sciatic neuritis of the sciatic syndrome. It is more common to have the first lumbar vertebra involved than the fifth. There is evidently a peripheral element as indicated by the relief from pain on lying down. It is questionable what the duration will be but it will probably be months.

The treatment to be considered may be divided into non-operative and operative. The former includes hyperextension on a curved Bradford or Whitman frame in the hyperextension frame or bed of Rogers, or by the methods of Davis or Jones. A plaster-of-paris cast followed by a Taylor spine brace with a U band should be beneficial. It may be necessary to perform a fusion operation at the lumbosacral junction. The prognosis should be good.

ETHYL GASOLINE POISONING OR SYPHILIS

To the Editor—An ex service man aged 40 driver of a gasoline delivery truck handling quantities of ethyl gasoline and subjected to constant invasion of the driver's compartment of the truck by motor exhaust gases was seized Sept. 21 1932 with severe left frontoparietal headache dizziness general weakness and slight somnolence. The examination September 23 disclosed diplopia, right ptosis and external squint. There was marked unsteadiness in walking. The patellar reflex was + + + +. The Romberg test revealed slight swaying, and the gait was slightly ataxic. The tongue slightly deviated to the right on protrusion. Fever was absent. The pulse was 80. The pupils were of the Argyll Robertson type. The blood Wassermann reaction was + + + +. There was no basophilia. No paresthesias were discernible. The blood picture was normal. Weakness in walking rapidly progressed until October 8 when he could walk only when more than half supported. October 5 the knee jerks had completely disappeared. Ptosis of the left lid and paresthesias in the legs had appeared. The patient previously had always been in vigorous health with no serious illnesses. He had gonorrhea fifteen years before of moderate severity and quickly cured. He had no knowledge of any genital lesion at any time. He was married and had one healthy son 12 years of age. His wife had had no other pregnancies. Examination of the eyegrounds September 29, disclosed a small area of pigmented retinitis in the left eye. There was no papillitis. The patient said that the left eye had been 'weak' for several years. He occasionally drank to slight excess. No blood examinations were made on the wife or the child. No spinal puncture was made. He had extensive pyorrhea. Three abscessed teeth had been extracted. After several days of anxious speculation and study it was decided to institute active antisyphilitic treatment. September 29 October 5 and October 8 he was given 0.5 0.9 and 0.9 Gm of neoarsphenamine intravenously, during which time the ataxia increased until he could not walk at all without much support on October 8 the knee jerk disappearing on October 5. October 11 there was a sharp enterocolitis lasting forty eight hours and marked gingivitis and salivation lasting two weeks. October 17 23 and 31 and November 7 he received 1 grain (0.065 Gm.) of mercuric salicylate intramuscularly. On this date November 7 he walked well without a cane or other assistance, though somewhat ataxic. The Romberg sign was slightly +. Left ptosis was complete right ptosis was present in slight degree. What are the probabilities as to the cause of this recent acute encephalitis? What should be the future treatment? I have considered the use of iodides and of sodium thiosulphate. Is there good reason for strongly suspecting lead poisoning as the cause of illness? If so what would be the determining factors. Does the apparent rapid amelioration of symptoms point away from syphilis as the cause? Please omit name and address.

M D Pennsylvania

ANSWER—No cases of lead poisoning in drivers of trucks transporting ethyl gasoline have as yet been definitely established. It would be of interest to have the patient's excreta analyzed for lead. But, except on the basis of a positive finding, there is no ground for considering lead poisoning as a factor superimposed on syphilis in this case.

SOFT TEETH AND SOFT WATER IN SCOTLAND

To the Editor—Recently I heard that the explanation of the fact that the people of Scotland in general have poorer teeth and to a noticeable extent lose the teeth at a much earlier age than is the case in the United States is that the water in Scotland is much softer. From personal observation I know that dental caries is much more evident in Great Britain than in this country. Can you state whether this is in appreciable degree due to the softness of the water rather than to less attention to dental care in European countries? Please omit name.

M D, California.

ANSWER—The relationship of the incidence of caries to the hardness of the water used for drinking was reviewed in the *Fortschritte der Zahnheilkunde* 7 348. On the assumption that more than 6 parts of calcium salts in 100,000 parts of water constitutes a hard water, Röse found that the percentage of wholly healthy teeth varied from 13 to 43 of those who consumed soft water and from 4.3 to 20.2 of those who drank hard water. Walter reported 36 per cent caries in a group using water with a low percentage (672 parts per hundred thousand) of lime salts and 18 per cent caries in another group drinking a very hard water (1596 parts lime salts per hundred thousand). Figures quoted from Rogger and Lauener are contradictory and fail to support the conclusions of Röse and Walter that caries varies inversely with the hardness of the water used for drinking purposes. The author of the review, Turkheim, suggests that the mineral content of the food consumed may be of much greater importance than the hardness of the water and that this was not given much consideration in these papers.

Hardness of the water does play a part, although of minor importance, in the etiology of dental caries. The cause for the well known high incidence of tooth decay in England and Scotland, without doubt, has but little to do with the softness of the water used there. Rather is it to be found, as suggested, in the attitude toward dental care, the character and composition of the food consumed, and the nutritional and hygienic habits of the inhabitants.

AMYOTROPHIC LATERAL SCLEROSIS

To the Editor—It is the contention of an applicant for veterans' compensation that "amyotrophic lateral sclerosis and progressive muscular atrophy" may be classified with encephalitis and spinal meningitis in the "preferred group" of laws of 1930. Are the pathologic changes in cord and motor nerve endings and the end results in the symptomatology, that is, the amount of paralysis, and so on, the same? Is this correct? The textbooks deal with lateral sclerosis and muscular atrophy lightly and are most confusing. Please omit name.

M D, New York

ANSWER—The rules governing compensation for progressive muscular atrophy and amyotrophic lateral sclerosis are identical with those that apply in the case of epidemic encephalitis. If these diseases were manifest before Jan. 1, 1925, service connection is assumed, the amount of compensation is determined on the basis of the actual degree of functional disability. Progressive muscular atrophy and amyotrophic lateral sclerosis are both characterized by progressive degeneration of the lower motor neurons, i. e., the anterior horn cells of the cord and the peripheral motor nerves, with consequent atrophy and loss of power in the muscles supplied by the affected neurons. In amyotrophic lateral sclerosis there is, in addition, degeneration of upper motor neurons, i. e., the giant cells of the motor area of the cortex of the brain and their axis cylinders, which constitute the pyramidal tracts and travel down the cord in the lateral column. As a result of this element in the disease there is a spastic condition of muscles that are not undergoing atrophy, with increased tendon reflexes, frequently clonus, and an extensor type (Babinski sign) of plantar reflex.

FARASTAN

To the Editor—The pages of the *American Journal of the Medical Sciences* regularly carry advertising of Farastan, which is said to be iodo-cinchophen. Kindly advise me as to the official status of this substance. Is it known to produce hepatitis, such as is believed to occur following the use of cinchophen?

M D, New York

ANSWER—Farastan was the subject of an adverse report by the Council on Pharmacy and Chemistry (*THE JOURNAL*, Feb. 15, 1930, p. 484). The name is a proprietary designation under which the Farastan Company markets its preparation of iodine and cinchophen, which is claimed to contain approximately 33 per cent of iodine. As the Council pertinently remarked, there is no evidence that the routine use of cinchophen and iodide in fixed proportions (or in any proportions) is desirable or rational. Usually the conditions that require cinchophen do not require the simultaneous administration of the iodides, and vice versa. It appears particularly undesirable and even dangerous to encourage the routine prescribing of cinchophen, which should be used only for short periods, with an iodide compound, which should be continued over a long period. If the administration of iodide together with cinchophen should be indicated or desirable, these can be given in separate doses. There is no reason to suppose that the likelihood of producing hepatitis from Farastan is any less than that from an equivalent amount of cinchophen.

TEST FOR BILE IN URINE

To the Editor—The textbook on physiology by Landois and Stirling mentions a simple test for bile in the urine. A pinch of flowers of sulphur is sprinkled on the surface of the urine, and, if bile is present, the sulphur sinks to the bottom. Some authors have gone so far as to call the delicacy of this test "miraculous." Now I have sprinkled flowers of sulphur in urine loaded with bile, and have yet to see the powder sink at once to the bottom. Shall I believe my own eyes or the authorities? Perhaps you can help me out. Please omit name.

M D, New York

ANSWER—Either bile pigments or bile acid salts or both may be excreted into the urine, hence it is necessary to test for both.

The test with sublimed sulphur (flowers of sulphur) is a surface tension test and is a test for bile acid salts only and not for bile pigments. The presence of bile salts (0.01 per cent or more) lowers the surface tension enough to cause the sulphur to sink rapidly. Settling after agitation is inconclusive. Pettenkofer's test is the most satisfactory one for bile salts in the urine.

These tests for bile salts are often negative in clinical jaundice, even when much bile pigment is present. This negative reaction for the bile salts is due to the fact that they are formed at a slow rate and normally conserved by resorption from the intestinal tract. Only when the threshold in the blood exceeds the renal threshold for bile salts do they appear in the urine.

The tests for bile pigments most commonly used are the foam and Gmelin-Rosenbach tests. From the foregoing observations it is obvious that the tests for bile pigments should always be done and that their presence has the same significance as the presence of the bile acids or their salts. The test with sublimed sulphur is positive only when the bile salts exceed 0.01 per cent.

PARALYSIS OF PALATE AFTER DIPHTHERIA INFECTION

To the Editor—Recently I have had two patients affected by a paralysis of the soft palate, one of them also having an ocular involvement, there being a total paralysis of accommodation. The conditions followed throat infections, one having a severe streptococcal infection and the other a milder mixed infection. The two patients live in the same apartment house and work in the same building. The severe case preceded the other by several weeks. Is it unusual to have such paralysis following other than diphtheria infection? Is a diphtheria carrier subject to it without having the disease? Is exercise contraindicated before the paralysis clears? Please do not publish my name.

M D

ANSWER—With this type of cranial nerve involvement it is almost certain that infection with the diphtheria bacillus also existed. It is extremely unusual to have such involvement in any other infection. To our knowledge a mere carrier would not be so affected. It is well to be slow in allowing exercise, as there may be some involvement of the vagus.

ARTHRITIS DEFORMANS

To the Editor—A woman, aged 50, has had arthritis deformans for twenty years. There has been a progressive increase in muscular atrophy and deformity of the hands and spine during this time, in spite of treatment at various clinics throughout the country. Many possible foci of infection have already been removed, especially in the teeth and the tonsils. Her present condition is ankylosis of the spine in such a curve that her head is fixed on her chest, making it difficult to breathe and to eat. There is some pain in all the diseased joints, and a great amount of pain in her back, on the right side, over the lower ribs. The muscle in this region is unusually hard to the touch, and there is great tenderness on pressure. Some one has convinced the patient that her spine can be forcibly straightened out sufficiently to allow her head to become upright. She feels that if she were ankylosed in that position she would be likely to produce a much more rapid progress in the course of the disease, but I would appreciate your advice as to the practicability of this or any other procedure.

LOUIS LEFEVRE, M D, Muskegon, Mich.

ANSWER—This is evidently a case of progressive arthritis deformans with marked atrophic symptoms. The following are factors in the treatment that may be of benefit: (1) gradual traction in the line of deformity, (2) wedged casts, (3) a turn-buckle jacket, (4) ether anesthesia, (5) vaccine for pains, (6) posture training and (7) physical therapy, consisting of radiant heat, gentle massage, very gentle manipulation and the sinusoidal current to improve muscle tone.

BLOOD PRESSURE IN PREGNANCY

To the Editor—What is the explanation of a blood pressure reading of 80 systolic, 50 diastolic, in a perfectly healthy young woman of 25 who consulted me on account of an early pregnancy? There is no asthenia or neurosis. Weight gain is progressing normally under the circumstances and is normal for the age and height. What is the prospect of this condition producing complications of labor or puerperium? Please omit name.

M D, Iowa

ANSWER—A woman may be perfectly healthy and have a surprisingly low blood pressure. Some athletes have a low blood pressure. Ordinarily during pregnancy the blood pressure runs from 105 to 115 systolic with the usual 3-2-1 ratio of pulse pressure. Any pressure below 100 may be considered unusual, possibly abnormal, but the patients do not always suffer. Anemia, tuberculosis, neurasthenia, enteroptosis, heart disease, focal infections and endocrinopathy should always be looked for in cases of hypotonia and these conditions treated as well as possible. Blood pressures as low as 60 systolic and 40 diastolic have been reported as not being followed by trouble, although it seems that these women are likely to be obstetrically unfit. They show effort-exhaustion, cold hands and feet, acrocyanosis, headaches, vertigo, sleepiness, fainting spells and unbalanced emotions. They are liable to abort or have premature labor, and the labor is often complicated by muscular weakness with prolongation. The babies are apt to be small.

P. F. Williams wrote a good paper on hypotonia in pregnancy (*Am J Obst & Gynec* 18:546 [Oct] 1929).

UNILATERAL NASAL DISCHARGE

To the Editor—I am taking care of a child who has had a unilateral nasal discharge for three years. She has had an antrum operation on the same side. She has had skin tests. The culture is negative for Klebs Löffler bacilli but there is still a watery nonirritating discharge. How common is this and what can be done about it? Please omit name.

M D, Massachusetts

ANSWER—A unilateral nasal discharge persisting over a long period of time, especially in a child, is suggestive of the possibility of a foreign body. This is particularly true if any suppurative condition present in one of the sinuses has been properly treated, or if no suppuration in any of the sinuses can be found by transillumination or roentgen examination. A thin, watery discharge from the nose is often due to a hyperesthetic rhinitis but it is unusual to find this condition in one side of the nose only. It is rather uncommon for this thin secretion to be present after radical operative treatment of the maxillary sinuses. Roentgenograms of the nasal cavities should be made carefully in the effort to decide definitely whether a foreign body of any sort is present which produces a constant irritation. Protein sensitization tests might be made, but the skin tests are not always positive even when there is a protein sensitivity of one sort or another. The use of a bland oil, such as white liquid petrolatum, instilled into the nose three or four times a day may allay a local irritation of the mucous membrane if no foreign body is present.

CHRYSAROBIN IN PSORIASIS

To the Editor—In *Queries and Minor Notes* (THE JOURNAL Dec. 17 1932 p 2134) the question was raised about the use of arsenic in the treatment of psoriasis in children. I have had many older patients with one or many previous attacks coming on usually in the cold months in which some form of chrysophanic acid was used locally and always with personally supervised application. Why do you not mention this drug in your answer? In my hands it has been by all means the most valuable remedy for the attack. Secondly, does diet play any part in the treatment? Please omit name.

M D New York.

ANSWER—Chrysophanic acid preparations were not mentioned because no attempt was made to cover all methods of treatment for psoriasis and because the objections to the chrysophanic preparations in children are greater than they are in adults. The difficulty of preventing children from getting the ointment on their fingers and then rubbing the fingers in their eyes is the chief objection. If these preparations are used in children they should be weak. Five-tenths per cent ointment of chrysarobin is often sufficient. The danger of dermatitis is much greater than in adults. Dietetic treatment of psoriasis, in the experience of most dermatologists, has been unsuccessful.

ABSORPTION OF BORIC ACID FROM SKIN

To the Editor—Please advise me whether there is any danger of absorption of borax enough to cause systemic trouble from the continued use for a few months of the following preparations for ringworm of the scalp in a boy aged 7 years. Preparation 1. 2 per cent borax solution in water and alcohol used on the scalp once daily. Preparation 2. boric glyceride 50 per cent rubbed into the affected area twice daily. I obtained this treatment from Shoemaker's *Diseases of the Skin* and he says there are no poisonous qualities. The editorial on unappreciated paths of absorption (THE JOURNAL Dec 8 1928 p 1807) would also lead me to believe that sodium borate is not absorbed whereas boric acid is. How ever I should like to be convinced again as I have an enigmatic case in which this treatment has been used for some time. Please omit name and address.

M D New Mexico

ANSWER—The statement is correct that boric acid may be absorbed from the skin while sodium borate is not. This applies only however to normal skin. When the skin is excoriated or diseased both agents may become absorbed. Unless the lesion is extensive, however it is doubtful whether any harm will come from these relatively nontoxic agents.

DETAILED DENTITION AND ENDOCRINE DISORDERS

To the Editor—I have a child about 5 years of age whose family history is entirely negative other than the fact that during gestation period the mother had a basal metabolic rate of minus 30 and received thyroid extract in sufficient doses to counteract this low rate. At the present time this child has only six or eight teeth and roentgenograms of the maxilla and mandible show that there are no formations of any type. Please give me any suggestions or information that you may have on this subject. Please omit name.

M D Texas

ANSWER—Since endocrine disturbance especially deficiency of the thyroid is one of the accepted causes for the probable explanation of dentition incompleteness the prenatal low basal metabolic rate of the mother would seem to be particularly significant in this case. At 5 years all the deciduous teeth should be wholly erupted and many of the permanent teeth calcified to a degree that

would produce a record in the roentgenogram. It is possible, however, that there may be present elementary and uncalcified tooth germs which do not show on the films, but it seems likely that this is a case of the congenital absence of many teeth, a condition that is extremely rare. Treatment is based largely on the suspected etiology, as endocrine therapy and ultraviolet radiation (both local and general). Other evidences of endocrine disease should be of some value in determining the exact nature of the deficiency, if any. Eventually, prosthetic substitutes for the missing teeth will have to be supplied.

CRITERIA OF CURE IN LEPROSY

To the Editor—Can you tell me when a patient is actually cured of leprosy? I have several who have been under treatment for a long time and have no sign or symptom whatever of the disease except that they have some anesthesia in spots. In many of my patients the amount of anesthesia is greatly reduced, but I have yet to see a case in which it has absolutely disappeared. Recently I have been wondering whether there may not be some permanent damage done to the nerves as there is to some of the other tissues. If you can give me any help I will be really grateful for the treatment is hard for these patients every week.

C E BOUSFIELD, M D Chaoyang China

ANSWER—Leprologists hesitate to pronounce convalescent lepers "cured," since there has not been described an acceptable test to determine the disappearance of the disease.

Patients presumed to have recovered from leprosy are released from various leprosariums on arbitrarily adopted criteria dependent on a period of months or years during which the patient has been free from symptoms as well as presumably free from *Mycobacterium leprae*.

Lepers having the skin type of leprosy may return almost completely to normal. Lepers of the nerve and mixed types usually retain their deformities and the majority of the anesthesias, destruction of nerve trunks or nerve fibers may be demonstrated histologically, nerve regeneration is relatively infrequent and incomplete.

SCIATIC INFLAMMATION AND SPINAL ANESTHESIA

To the Editor—I have a patient who was operated on in August 1932 for acute appendicitis under spinal anesthesia. The operation lasted twenty minutes. There were no complications except violent headache for three days unrelieved by morphine or sodium amytal. For the past two months the patient has complained of severe sciatica, on the right side whenever she remains seated for any length of time. Tonsillectomy was performed in childhood. The teeth are sound. The Wassermann and Kahn reactions are negative. Please advise as to pathologic changes suspected and the treatment.

A. L. DELANEY, M D Livingston Texas

ANSWER—It is improbable that there is any connection whatever between the "sciatica" and spinal anesthesia. The violent headache that followed was probably due to the seepage of cerebrospinal fluid following the lumbar puncture. Concerning the treatment of so-called sciatic neuritis or the sciatic syndrome, one would suggest absolute recumbence in bed with leg or pelvic traction, with the foot of the bed elevated and a weight suspended from a traction rope. Physical therapy consisting of radiant heat and gentle massage should be beneficial. Diathermy should be tried and continued unless it aggravates the symptoms.

SYNTHALIN IN DIABETES

To the Editor—Kindly give the status of the use of synthalin in the treatment of diabetes mellitus. Are there any ill effects of long continued usage? Please omit name.

M D Illinois

ANSWER—It is the general opinion at present that synthalin is of little or no actual value in the treatment of diabetes mellitus. When it was first brought out it was noted that following its administration the excretion of sugar in some cases was diminished. However, many such patients who were improved complained of nausea or vomiting. Later it was discovered that synthalin was a liver toxin and most observers believed that the apparently good effects were actually the result of damage to the liver. Certainly the initial promise of its usefulness has not been sustained by later investigation. The product has not been accepted by the Council on Pharmacy and Chemistry.

VEHICLE FOR OILY SPRAY

To the Editor—What oil may be prescribed as a vehicle for spray instead of Aeryl and such proprietary preparations?

JAMES W. DAVIS, M D Statesville N C

ANSWER—White liquid petrolatum or any other plain bland oil may be used as a vehicle for an oily spray. Instead of the ordinary atomizer it is necessary to use a nebulizer when using any oily preparation.

Council on Medical Education and Hospitals

COMING EXAMINATIONS

ALASKA Juneau, March 14 Sec., Dr Harry C DeVighe, Juneau
AMERICAN BOARD FOR OPHTHALMIC EXAMINATIONS Milwaukee, June 12 Sec., Dr William H Wilder, 122 S Michigan Blvd, Chicago
AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY The written examination will be given in cities of the United States and Canada where there is a Diplomat who may be empowered to conduct the examination, April 1 The general oral clinical and pathological examination will be held in Milwaukee, June 13 Sec., Dr Paul Titus, 1015 Highland Bldg, Pittsburgh
AMERICAN BOARD OF OTOLARYNGOLOGY Milwaukee, June 12 Sec., Dr W P Wherry, 1500 Medical Arts Bldg, Omaha
ARIZONA Phoenix, April 4 Sec., Dr B M Berger, 743 E McDowell Rd, Phoenix
CALIFORNIA Reciprocity, Los Angeles April 19 Sec., Dr Charles B Pinkham, 420 State Office Bldg, Sacramento
COLORADO Denver, April 4 Sec., Dr Wm Whitridge Williams, 422 State Office Bldg, Denver
CONNECTICUT Regular Hartford March 14 15 Endorsement Hartford March 28 Sec., Dr Thomas P Murdock, 147 W Main St, Meriden Homeopathic New Haven, March 14 Sec., Dr Edwin C M Hall, 82 Grand Ave, New Haven
IDAHO Boise April 4 Commissioner of Law Enforcement, Hon Emmitt Pfost, Boise
ILLINOIS Chicago April 11 13 Superintendent of Registration, Mr Paul B Johnson, Springfield
MAINE Portland, March 14 15 Sec., Dr Adam P Leighton, Jr, 192 State St, Portland
MASSACHUSETTS Boston, March 14 16 Sec., Dr Stephen Rushmore, 144 State House, Boston
MINNESOTA Basic Science Minneapolis, April 4 5 Sec., Dr J C McKinley, 126 Millard Hall, University of Minnesota Minneapolis Regular Minneapolis, April 18 20 Sec., Dr E J Engberg, 350 St. Peter St, St Paul
MONTANA Helena, April 4 Sec., Dr S A Cooney, 7 W 6th Ave, Helena
NATIONAL BOARD OF MEDICAL EXAMINERS Parts I and II The examinations will be held at centers where there are five or more candidates, May 8 10, June 26 28 and Sept. 13 15 Ex Sec., Mr Everett S Elwood, 225 S 15th St, Philadelphia
NEW HAMPSHIRE Concord, March 16-17 Sec., Dr Charles Duncan, Concord
NEW MEXICO Santa Fe, April 10 Sec., Dr P G Cornish, Jr, 221 W Central Ave, Albuquerque
OKLAHOMA Oklahoma City, March 14 15 Sec., Dr J M Byrum, Shawnee
RHODE ISLAND Providence April 6 7 Dir., Dr L A Round, 319 State Office Bldg, Providence
TENNESSEE Memphis, March 23 24 Sec., Dr A B DeLoach, Medical Arts Bldg, Memphis
WEST VIRGINIA Charleston, March 14 Sec., Dr W T Henshaw, State Health Department, Charleston
WISCONSIN Reciprocity Milwaukee, April 11 Sec., Dr Robert E Flynn, 401 Main St, La Crosse

Texas June Report

Dr T J Crowe, secretary, Texas State Board of Medical Examiners reports the written examination held in Marlin, June 21-23, 1932 The examination covered 12 subjects An average of 75 per cent was required to pass One hundred and forty-four candidates were examined all of whom passed Sixty-four candidates were licensed by reciprocity with other states The following colleges were represented

College	PASSED	Year Grad	Per Cent
College of Medical Evangelists	(1932) 85 9, 86		
University of Nebraska College of Medicine	(1932) 82, 82		
Jefferson Medical College of Philadelphia	(1931) 83 3, 86 5		
University of Pennsylvania School of Medicine	(1932) 79 9, 90 3		
Vanderbilt University School of Medicine	(1932) 83 1, 87 7		
Baylor University College of Medicine	(1932) 75,		
75, 76 8, 77 6, 77 8, 78 2, 78 9, 79 3, 79 7, 79 8, 80, 80 3, 80 9, 81, 81 4, 81 5, 81 7, 82 8 2, 82 1, 82 1, 82 2, 82 3, 82 3, 82 5, 82 6, 82 6, 82 7, 82 9, 83 2, 83 3, 83 4, 83 4, 83 7, 83 8, 83 8, 83 9, 84, 84 2, 84 2, 84 8, 84 8, 84 9, 85, 85, 85 1, 86, 86, 86 2, 86 4, 86 5, 86 8, 87, 87 4, 87 5, 88 3, 89 6, 89 7, 90 9, 91 8			
University of Texas School of Medicine	(1932) 78 5,		
79 8, 80 5, 80 5, 80 6, 80 9, 81 1, 81 8, 82 5, 82 6, 82 8, 83, 83 3, 83 3, 83 4, 83 4, 83 5, 83 5, 83 6, 83 8, 83 9, 83 9, 84, 84 1, 84 3, 84 4, 84 5, 84 7, 84 9, 85 2, 85 2, 85 4, 85 5, 85 5, 85 6, 85 6, 85 9, 86 1, 86 2, 86 4, 86 6, 86 6, 86 8, 86 8, 86 9, 86 9, 87, 87 2, 87 2, 87 2, 87 4, 87 6, 87 7, 87 7, 88 1, 88 1, 88 3, 88 3, 88 3, 88 3, 89, 90 5, 90 5, 90 8, 91 3			
McGill University Faculty of Medicine	(1928) 86 1		
Université de Paris Faculté de Médecine	(1932)* 78 3		
Universidad Nacional de Guadalajara, Mexico	(1920)* 84		
Universidad Nacional Facultad de Medicina Mexico	(1927)* 81 3		
Osteopaths	81 9, 82 6, 87 8		

College	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
University of Alabama School of Medicine	(1917) Mississippi		
University of Arkansas School of Medicine	(1931) Arkansas		
Denver Homeopathic College	(1907) Colorado		

Atlanta School of Medicine, Georgia	(1912)	Georgia
Chicago College of Medicine and Surgery	(1912)	Illinois
Rush Medical College	(1930)	Colorado
Kansas Medical College, Kansas	(1900)	Iowa
Univ of Louisville School of Med	(1926), (1929), (1930, 2)	Kentucky
Tulane University of Louisiana School of Medicine	(1915), (1929, 2), (1930, 3), (1931, 4)	Louisiana
University of Michigan Medical School	(1929)	Michigan
St Louis University School of Medicine	(1906)	Oklahoma,
(1912), (1916) Missouri		
Washington University School of Medicine	(1927)	Minnesota,
(1929) Louisiana, (1931) Missouri		
Croighton University School of Medicine	(1931)	Kansas
University of Nebraska College of Medicine	(1929)	Nebraska
Western Reserve University School of Medicine	(1914)	Ohio
University of Oklahoma School of Med	(1930, 3), (1931, 2)	Oklahoma
Jefferson Medical College of Philadelphia	(1913)	Penna,
(1920) South Dakota, (1927) West Virginia		
University of Pennsylvania School of Medicine	(1920)	Penna,
(1923) Minnesota		
Meharry Medical College	(1931, 2)	Tennessee
Memphis Hospital Medical College, Tennessee	(1903)	Mississippi
Univ of Tennessee Coll of Med	(1926), (1930, 2), (1931, 3)	Tennessee
Vanderbilt University School of Medicine	(1917)	Louisiana,
(1930, 2) Tennessee		
Medical College of Virginia	(1926)	W Virginia,
(1931) Mississippi		
University of Wisconsin Medical School	(1928)	Wisconsin
Universidad Nacional Facultad de Medicina, El Salvador	(1909)*	Penna
Osteopaths	Missouri, 4, New Mexico, Pennsylvania, 2	

* Verification of graduation in process

New Jersey June Examination

Dr James J McGuire, secretary, New Jersey State Board of Medical Examiners, reports the written examination held in Trenton, June 21-22, 1932 The examination covered 9 subjects and included 90 questions An average of 75 per cent was required to pass Ninety-one candidates were examined, 84 of whom passed and 7 failed The following colleges were represented

College	PASSED	Year Grad	Per Cent
Georgetown University School of Medicine	(1930) 79 6, (1931) 76 7 5 81 6 82 1, 82 3, 82 5, 82 6, 83 4, 83 8, 84 8, 85 4, 86, 86 3, 86 4	(1929) 81 1, 82 1,	
George Washington University School of Medicine	(1931) 79 1, 82 1		
Loyola University School of Medicine	(1932)	88 8	
University of Illinois College of Medicine	(1932)	86 2	
Johns Hopkins University School of Medicine	(1930)	86 3	
University of Maryland School of Medicine and College of Physicians and Surgeons	(1931)	87	
Boston University School of Medicine	(1931)	81 2	
Harvard University Medical School	(1931)	85 1	
Tufts College Medical School	(1930) 85 2, (1931)	83 4	
Washington University School of Medicine	(1931)	86 4	
Columbia University College of Phys and Surgs	(1931)	83 8,	
85 5, 85 5			
Long Island College of Medicine	(1931) 78 1 80 4, 81 8, 84 8		
New York Homeopathic Med College and Flower Hosp	(1931)	86	
University and Bellevue Hospital Medical College	(1931)	83,	
84 4, 87 1, 90 6			
University of Buffalo School of Medicine	(1931)	84 8	
Hahnemann Medical College and Hosp of Philadelphia	(1931)	80 6,	
81 8, 82 3, 82 5, 83 5, 84, 84 2, 84 3, 85, 85 6, 86 3, 86 7, 87 6, 88 1, 88 3, 88 7			
Jefferson Medical College of Philadelphia	(1930) 82 3, 82 7, 85 8,		
(1931) 80 3, 81 2, 81 4, 81 8, 82 6, 86 2, 89 4, 90 2			
Temple University School of Medicine	(1931) 84 1 84 6, 84 7		
University of Pennsylvania School of Medicine	(1930)	88 2,	
(1931) 81 7, 83 3, 83 8, 85 6, 88 2			
Medical College of Virginia	(1931)	78 7	
Dalhousie University Faculty of Medicine	(1932) 87 8, 88 6		
University of Toronto Faculty of Medicine	(1925)	83 2	
McGill University Faculty of Medicine	(1931) 82 3, 84 3		
Facultad de Medicina de la Universidad de Cartagena, Colombia	(1925)	80 8	

College	FAILED	Year Grad	Per Cent
Regia Università di Napoli Facoltà di Medicina e Chirurgia	(1903) 62,* (1923) 62,* (1924) 62 3, 69 6		
Regia Università di Pavia degli studi Facoltà di Medicina e Chirurgia	(1921)	71 2	
Regia Università di Palermo degli studi Facoltà di Medicina e Chirurgia	(1924)	54 3	
Universtyetu Jana Kazimierza Wydziału Lekarskiego, Poland	(1925)	66 5*	

Dr McGuire also reports 83 physicians licensed by endorsement from January 13 to July 20 The following colleges were represented

College	LICENSED BY ENDORSEMENT	Year Grad	Endorsement of
University of Arkansas School of Medicine	(1928)		Arkansas
George Washington University School of Medicine	(1930) Dist Colum,		
(1931, 2) Maryland			
Howard University College of Med	(1930)		Georgia, New York,
(1931) Kansas			
Chicago College of Medicine and Surgery	(1916)		W Virginia
College of Physicians and Surgeons of Chicago	(1907)		Illinois
Loyola University School of Medicine	(1925)		New York
Northwestern University Medical School	(1927)		Illinois
Rush Medical College	(1931)		N B M Ex.
University of Illinois College of Medicine	(1916)		California
Indiana University School of Medicine	(1928), (1930)		Indiana
State University of Iowa College of Medicine	(1931)		Iowa

University of Kansas School of Medicine	(1930)	Kansas
University of Louisville School of Medicine	(1930)	Kentucky
Tulane University of Louisiana School of Medicine	(1929)	Louisiana
Johns Hopkins University School of Medicine	(1930)	Maryland
University of Maryland School of Medicine	(1889)	Dist. Colum
University of Maryland School of Medicine and College of Physicians and Surgeons	(1927)	Penna
(1928) (1930 2) Maryland		
Boston Univ School of Med	(1927) N B M Ex	(1930) R Island
Harvard University Medical School		(1922) Virginia
(1925) (1929) N B M Ex.		
Tufts College Medical School	(1930) N B M Ex.,	(1931) Maine
University of Minnesota Medical School	(1931) N B M Ex.	(1931) N B M Ex.
Washington University School of Medicine	(1926)	Missouri
Columbia University College of Physicians and Surgeons	(1925), (1930 2) New York	(1928) N B M Ex.
Cornell University Medical College	(1925), (1930 2) New York	(1929) N B M Ex.,
(1928 2) (1931) New York		
Fordham University School of Medicine	(1910) (1913)	(1914) New York
Long Island College Hospital	(1930 2) (1931 2)	(1929) New York
Long Island College of Medicine	(1930 2) (1931 2)	(1931 2) New York
Syracuse University College of Medicine	(1930) N Carolina	(1930) N Carolina
Univ & Bellevue Hosp Med Coll	(1925) (1930) (1931 3)	(1931 3) New York
University of Buffalo School of Medicine	(1928)	(1928) New York
Hahnemann Med Coll and Hosp of Philadelphia	(1930 2)	(1928) Penna.
Jefferson Med Coll of Philadelphia	(1920), (1928), (1929)	(1929) Penna.
(1930) North Carolina (1931) New York		
Medico-Chirurgical College of Philadelphia	(1912)	(1912) Penna
Univ of Pennsylvania School of Med	(1919) (1923)	(1929) Penna.,
(1930) N B M Ex.		
University of Pittsburgh School of Medicine	(1928)	(1928) Penna
Meharry Medical College	(1930) N B M Ex.	(1930) N B M Ex.
University of Tennessee College of Medicine	(1916)	(1916) Tennessee
(1931) New York		
University of Vermont College of Medicine	(1920)	(1920) New York
(1931 2) Vermont		
Medical College of Virginia	(1929)	(1929) New York
McGill University Faculty of Medicine	(1922)	(1922) Penna.
Medizinische Fakultät der Universität Wien	(1927)	(1927) New York
Georg August Universität Medizinische Fakultät, Göttingen	(1919)	(1919) New York
Regia Università di Napoli Facoltà di Medicina e Chirurgia	(1906)*	(1906)* Delaware
Faculdade de Medicina do Porto Portugal	(1919)*	(1919)* Alabama
		(1919)* Mass

* Verification of graduation in process

Book Notices

Tenth Scientific Report on the Investigations of the Imperial Cancer Research Fund Under the Direction of the Royal College of Physicians of London and the Royal College of Surgeons of England. Boards Price 30s 1p 202 with illustrations London Taylor & Francis 1932

This embodies the results of investigations conducted during the past three years. Ludford found that the lowering of resistance to the growth of transplantable tumors is the result of some interference with the function of cells derived from lymphocytes and monocytes, which segregate acid dyes. Such cells appear in large numbers around the margins of reabsorbing tumors and irradiated tumors. The results of these experiments indicate the possible danger in the treatment of cancer with colloids in cases in which the body may be offering some resistance to the malignant growth.

Fould's experiments of the effect of vital staining on the distribution of the Brown-Pearce rabbit tumor led to the observation that tumors are rarely found in the spleen and are relatively uncommon in the lungs and liver. Vital staining with trypan blue greatly increased the incidence of tumors in the spleen, lungs and liver after intravenous inoculation. It is suggested that the spleen in man resists the establishment of secondary deposits by a local mechanism probably dependent on the cells of the reticulo-endothelial system.

Crabtree reports biochemical investigations on respiration and carbohydrate metabolism of the irradiated tumor cells *in vivo* and *in vitro* in which he demonstrated that radium effects a lowering of the respiratory function of cells and, more slowly, of the glycolytic function also. No differential action on the metabolism of tumor tissues, as against normal tissues, was observed as a result of radium irradiation, and the observations failed to support the conception that tumor tissue is inherently more vulnerable than normal tissue to radiation.

In an experimental study of the action of radium, Cramer observed that the application of radium to a precancerous area of skin delays and even inhibits the development of cancer. No evidence was adduced that radium breaks down the resistance of the skin to the development of cancer. In a second series of experiments Cramer studied the therapeutic action of radium and concluded that irradiation of a neoplasm damages both the tumor cells and the tumor bed and that regression of a tumor is brought about by a combination of these two effects.

(This view differs from that of the French school, which explains the therapeutic effect of radium on the basis of a selective destructive action on malignant cells.) Cramer's observations are confirmed by Ludford's cytologic studies, which appear also to indicate that, in addition to the direct effect of radium on malignant cells, changes in stroma, particularly in the blood vessels, play an important part in the regression of malignant tumors. Studies on the differential reaction to trypan blue of normal and malignant cells *in vitro* led Ludford to the conclusion that malignant cells do not segregate trypan blue in the same manner as nonmalignant cells when the two are subject to the action of the dye under identical conditions in tissue cultures. Neither *in vivo* nor *in vitro* do the cells of the filtrable tumors stain vitally like their nonmalignant prototypes. It is suggested that the failure of malignant cells to segregate acid dyes may be due to their impermeability to these substances, or it may be due to some peculiarity of metabolism of the cancer cell or of its colloid state.

Colonio Irrigation By W. Kerr Russell M.D. B.S. Medical Officer in Charge Light and Electrical Departments Miller General Hospital for South-East London. Cloth Price \$3. Pp 191 with 28 illustrations. Baltimore: William Wood & Company 1932.

The author reviews the history of clysters and briefly discusses the anatomy, physiology, bacteriology and parasitology of the colon. The various types and modifications of colonic lavage apparatus and the methods of lavage are discussed in detail and are accompanied by appropriate illustrations. The author considers the short catheter preferable to the long one except when medication is to be injected into the cecum. The Studa chair, he says, or the Gymnocolon apparatus is to be preferred. The physiologic effects, dangers and contraindications of colonic lavage and conditions benefited by it are mentioned, and a list of irrigating solutions with their respective indications is included. The validity of the pathologic role of "autointoxication" must be challenged, the existence of which lacks conclusive proof and toward which colonic lavage is in the main directed. Further, exception is taken to the statement "It is obvious that chronic stagnation of the bowels must lead to a chronic poisoning of the whole system," for every physician of wide experience has surely encountered persons who, while having infrequent evacuations, feel well in all respects. Nor has it been proved beyond peradventure of doubt that "chronic constipation lessens the resistance of the body to infecting organisms." The conditions benefited by lavage, as enumerated by the author, are indeed numerous and highly diversified, the therapeutic rationale in many instances being highly questionable. Again, it has not been proved satisfactorily that mucus present in the return flow of the irrigating medium is due to the cleansing effect of the latter, rather, it is believed that repeated lavage has an irritating effect on the colon and is productive of the mucus secretion. In general, it is felt that the practice of colonic lavage has become too expansive and panacean and its virtues have been exaggerated and overemphasized without adequate clinically controlled studies.

La critica medica nella storia Alessandro Magno. Da Mario Bertolotti. Cloth Pp 413 with 70 illustrations. Turin: Fratelli Bocca Editori [n. d.]

The author has attempted to study the biographic data on Alexander the Great from a medical, biologic and psychologic standpoint. He has arrayed an enormous amount of material and produced a book replete with fine photographs of the Alexandrian period, showing statuary and reproductions of many rare busts and masks of the emperor. An attempt is made to explain the psychology of Alexander the Great by taking into consideration his heredity, constitution and racial characteristics. The author assumes that Alexander was certainly a hyperthyroid type. He bases this conclusion on his mental precocity, prominent forehead, prominent, large jaw and evidence of strong will power. In discussing the character of the young man the author emphasizes his manly interest in the hard physical sports and the stern up-bringing that he received at the hands of his father and under Aristotle. The influence of the Macedonian race, composed of warlike peoples or stern virtues is contrasted with the highly civilized Hellenic people. The author cannot assign any value to the belief that Alexander was homosexual, as some of the contemporary Greeks were. The author feels that, notwithstanding the fact that Alexander

was not inclined to the company of women, he certainly was not a victim of homosexuality.

The character of Alexander may have been influenced by the affliction of wryneck, with which he suffered from early youth. The author points out that one side of the face was larger than the other and that no doubt some disturbance of the neurovascular bundle on that side of the neck may have affected his psychic and nervous reactions. The book contains some interesting descriptions of the fracture of the base of the skull from which Alexander recovered, and the author points out that the character of Alexander after this accident was not the same. He was irritable and suspicious of his friends. A fine description is given of the chest wound received in battle in Persia from which, according to reports by the various physicians that attended him, the author concludes that the emperor must have suffered from empyema. He gives a splendid description of an attack of malaria of the tertian type, which the author has reconstructed from the various historical reports of Alexander's illness.

In writing this book the author accomplished a gigantic task, even if it does not seem to possess any real utility, yet one can hardly escape the conviction that many of the deductions are purely conjectural in the absence of a true accumulation of facts.

Elements of Electrocardiographic Interpretation By Louis N. Katz, A. M. M. D. Physiologist and Director of Cardio-vascular Research, The Michael Reese Hospital, Chicago, and Victor Johnson, Ph. D., Instructor in Physiology, The University of Chicago. Paper, Price, \$1. Pp. 39, with 38 illustrations. Chicago: University of Chicago Press, 1932.

This contains thirty-eight carefully chosen electrocardiograms illustrating various normal and abnormal mechanisms of the heart beat. Such a presentation of the subject is necessarily incomplete and, as stated in the preface, "the outline omits entirely any consideration of etiology, symptomatology, and prognosis of the underlying cardiac pathology." The booklet, however, will be found valuable as supplementary reading for the student of cardiac physiology who depends on a series of lectures or one of the more detailed works on electrocardiography as the major source of his information on the subject.

Community Health Organization: A Manual of Administration and Procedure for Cities of 100,000, With Suggested Modifications for Larger and Smaller Urban Units Edited by Ira V. Hilscock, Professor of Public Health, Yale School of Medicine. Second edition. Cloth. Price, \$2.50. Pp. 261. New York: The Commonwealth Fund, 1932.

This volume summarizes the valuable services that have been rendered to the public by the Committee on Administrative Practice of the American Public Health Association through the studies of community health organization and its efforts to bring some sort of order out of the chaos into which excessive individualism had thrown public health administration. In the earlier portions of the several chapters, in which facts are recorded and fundamental principles discussed, the book is admirable. Health administrators, especially the inexperienced, should not be without it. Unfortunately, like other committees and commissions too well known to need mentioning, the conclusions do not always fit the facts. The principles of organization are excellent as described in the volume, but when details are discussed, especially with respect to personnel and budgets, the committee gets its feet far off the ground. Its schematic outline for health personnel and budget for a city of 100,000 is top-heavy with too much supervisory personnel. In such a department, the health officer would have nothing left to do but to perfect his golf game. To take but one example, the division of vital statistics, the scheme calls for a director and a clerk-draftsman, at combined salaries of \$4,500 to \$5,500. In such a city, if the rates were approximately normal, there would be about 2,200 birth certificates to handle, 1,200 death certificates and perhaps 600 marriage certificates. The cost would exceed \$1 for each certificate, when as a matter of fact the copying, classifying and indexing and making the necessary statistical studies could easily be done by an industrious clerk under the supervision of the health officer and at less than one-third the cost. There are other examples, such as the recommendation for a full time director of the division of venereal disease control, a function that could easily be discharged by the epidemiologist. Forty staff nurses, besides a director and seven

supervisors, are too many. Probably few cities of 100,000 do or may reasonably expect to undertake much in the way of drug control. The laboratory seems heavily overstaffed with three professional workers and a clerk. Probably the authors have been greatly influenced by their association with numerous demonstration and survey projects, in which special recording and research staffs have usually been financed by foundation grants. These are no part of the health organization of the average run of American cities, nor will they be. The practical health officer who has been in the game knows that, while he would enjoy being the boss of a de luxe outfit such as the book describes, he will be lucky if he gets half that, even in times of prosperity. He also knows that he can do a mighty good job of health work on a much less pretentious basis.

Bacteriology for Nurses with a Laboratory Manual By Royall M. Calder, M. D. Instructor and Resident in Medicine. Cloth. Price \$2. Pp. 285 with 52 illustrations. Philadelphia & London: W. B. Saunders Company, 1932.

This is a well conceived and well written textbook. Following brief chapters dealing with the historical phases of bacteriology, the general characteristics of micro-organisms and the fundamentals of infection and resistance, the greater portion of the book is devoted to the bacteriology of communicable diseases classified on the basis of methods of transmission and with particular emphasis on facts that are of value to nurses. A few statements are open to criticism. Toxins are classed as waste products of bacterial growth, colds are definitely stated to be due to a filtrable virus, and *Bacillus enteritidis* is the only member of the paratyphoid group mentioned in connection with food poisoning. The relative insignificance of these criticisms indicates the success the author has attained. The illustrations are considerably above the average of those found in most textbooks. A laboratory manual is included.

Cultivating the Child's Appetite By Charles Anderson Aldrich, M. D., Associate Attending Physician, Children's Memorial Hospital, Chicago. With a foreword by Clifford G. Grulee, M. D., Professor of Pediatrics, Rush Medical College, University of Chicago. Second edition. Cloth. Price \$1.25. Pp. 187. New York: Macmillan Company, 1932.

This edition contains minor changes of the original text and a chapter on developments in the last five years. This additional chapter contains discussions on the relationship of vitamin B to the appetite, the daily amount of milk to be included in the diet, and the influence of body type, gastro-intestinal physiology and endocrine gland secretions on the appetite. The author feels that the modern concept admits the influence of infected tonsils, adenoids and sinuses as a cause of poor appetite and that anemia is probably a potent cause of anorexia. The text contains numerous illustrative examples of the various types of anorexia commonly encountered. The book should prove of value not only to mothers but also to physicians, psychologists and nurses who may have to deal with anorexia in children.

Das Schicksal des Jungentuberkulösen Erwachsenen. Ergebnisse der Heilstättenbehandlung von annähernd 10,000 Männern und Frauen. Von Dr. W. Münchbach, Oberarzt der Heilstätte Friedrichshelm Nr. 49, Tuberkulose-Bibliothek. Beihefte zur Zeitschrift für Tuberkulose. Herausgegeben von Prof. Dr. Lydia Rablowsky. Paper. Price 6.20 marks. Pp. 64 with 8 illustrations. Leipzig: Johann Ambrosius Barth, 1933.

Dr. Münchbach has compiled statistical data on nearly 10,000 patients with pulmonary tuberculosis. They all have been under treatment in two tuberculosis sanatoriums. The end-results are expressed in terms of "able to do normal work," "able to do part-time work," "not able to work," and "dead." It is shown further how long the survival period was following discharge from the sanatorium. It was unavoidable to represent the final results essentially in subjective terms, since the patients were not examined at the end of the observation period but were requested to fill out questionnaires. The observation period was from two to nine years. The patients were grouped according to the anatomic extent of their lesion (Turban-Gerhardt classification), according to the presence or absence of cavities, and according to positive or negative sputum examinations. In addition, there is a group of patients who received pneumothorax treatment. It is probably just about impossible to include finer clinical detail in mass statistics on tuberculosis.

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Consequently, the results of such statistics remain unsatisfactory from a clinical point of view. Their value, however, is considerable for health administration. The results of Dr Münchbach's studies cannot be given in abstract, they are necessarily rough averages, to concentrate them further would deprive them of their value. Dr Münchbach's figures translated into human fate produce a gloomy picture indeed, and while nobody would expect the exact reverse, it is distressing to realize that sanatorium treatment has done so little to cure disease and prolong life. Nothing is said about the length of sanatorium treatment beyond the remark that patients who stayed less than six weeks were not included. Since the majority of the patients were supported by *krankenkassen*, it may be assumed that most of them did not stay longer than three months. If this assumption is correct, the present statistics may be accepted as representing the natural course of pulmonary tuberculosis, essentially uninfluenced by anything worthy of the name of phthisiotherapy.

Parents and Sex Education for Parents of Young Children By B C Gruenberg Third edition Cloth Price \$1 Pp 112 New York Viking Press 1932

This book covers sex education in a fairly adequate manner. In reading the pages one finds them not particularly interesting but reliable and constructive. The divisions of the book are not particularly appropriate and it was somewhat hard to find a given piece of information. The book escapes the most flagrant mistakes that are commonly made in sex education and is certainly better than the average.

Das Wesen der Krebskrankheit und ihre kausale Behandlung Von Dr Rudolf Hoosen Paper Price 3.80 marks Pp 56 Leipzig Curt Kahlitzsch 1931

This small monograph includes two distinct subjects: one, a new theory of cancer, the second, a discussion of the use of isamine blue as a therapeutic agent for cancer. The theory is that cancer is due to an increased osmotic pressure in the cancer cells as evidence for which is quoted the work of Cramer and others which shows that cancer tissues contain much more water than the corresponding normal tissues. The other arguments which the author produces to support his theory are not convincing nor is he any more happy in his proof that isamine blue has any value in the treatment of cancer. He acknowledges that transplanted animal tumors cannot be cured. He grants that the patient's skin remains blue for some time which obviously limits the use to advanced cases and he brings forward no definite statistics to prove its effectiveness either alone or in combination with irradiation in the cure of human cancer.

The Thinking Machine By C Judson Herrick Second edition Cloth Price \$3 Pp 374 with 8 illustrations Chicago University of Chicago Press 1932

The first edition of this book attracted wide attention as representing a biologic contribution to an understanding of the functions of the human brain. The author assumes a mechanistic view of human nature but sees therein no destruction of human values. In his second edition he has revised the book critically corrected a few errors and brought the work down to date in the light of recent research.

Trabajos recientes sobre endocrinología y psicología criminal Por el Prof A Lunde Traducción y prólogo del Profesor Mariano Rutz Funes Paper Price 1 peseta 1 p 314 Madrid Javier Morata 1932

This represents an interesting compilation of essays and articles that had been individually published by the writer at previous times. The first of these appeared in 1922. An attempt is made to explain the genesis of criminal characters on anomalies of physical development especially anomalies of the cerebrum. Minor anomalies passed through several generations have a tendency to breed degeneracy. The author has examined many criminals and in the majority of instances finds evidence of some endocrine dysfunction. The suggestion is offered that such dysfunction may be materially lessened by the administration of endocrine gland substances. A lengthy discussion of studies in modern biology follows. The author goes further and shows that the will of man is subconscious and man's actions are subordinated to his individual mechanical

somatic properties. The application of these studies to the science of criminology is in opposition to the usual "moral metaphysics." It will take some time before this new attitude will predominate in courts of justice.

Langs German English Dictionary of Terms Used in Medicine and the Allied Sciences With Their Pronunciation Revised and edited by Milton H Meyers M.D. Neurologist to the Northern Liberties Hospital Philadelphia Fourth edition Fabrikoid. Price \$10 Pp 926 Philadelphia P Blakiston's Son & Company Inc 1932

This dictionary is one of the best available in its field. The present edition contains 3,500 additional words with accurate pronunciations. It can be unhesitatingly recommended for those who require a dictionary of this type.

Patogenia y evolución de la tuberculosis pulmonar Por Dr Manuel Tapia director del Hospital Nacional de Enfermedades Infecciosas Dr Julio Orcaez radiólogo del Hospital Nacional de Enfermedades Infecciosas y Dr Rafael Navarro médico interno del Hospital Nacional de Enfermedades Infecciosas Paper Pp 159 with 140 illustrations Madrid Ruiz Hermanos 1932

This book sets forth the present status of tuberculosis. The initial or primary childhood infection is described, with several plates ably illustrating this lesion. Pulmonary tuberculosis occurring during childhood subsequent to this initial infection is considered an allergic phenomenon. It may follow the introduction of an enormous number of tubercle bacilli or it may occur in a person weakened from some other disease. A relative immunity to tuberculosis exists in adults. An infra-clavicular lesion is a common antecedent to the usual apical lesions. The usual types of tuberculosis in lungs of adults are enumerated and described briefly. For those who care to read more detailed monographs on the subject, a list of recent articles and periodicals dealing with tuberculosis is appended. Radiography has an enormous objective value in the study of pulmonary tuberculosis. It must be remembered that small tuberculous lesions may be elicited on physical examination which do not appear under the fluoroscope or on the roentgenogram, the reverse also is true. The major portion of this monograph consists of photographs and roentgenographic reproductions illustrating the types and degree of pulmonary tuberculosis. These are excellent and are printed on high quality paper.

Functional Disorders of the Large Intestine and Their Treatment By Jacob Buchstein M.D. Instructor in Gastrointestinal Roentgenology Cornell University Medical College Fabrikoid Price \$3 Pp 265 with 100 illustrations New York & London Harper & Brothers 1932

This short book offers a concise and clear presentation of functional disorders of the colon. The author has covered the literature well, and has drawn from it important facts to emphasize the factors of etiology and disturbed physiology. The various sections on treatment give many practical suggestions and measures. In many places the reading matter is simple and clear enough to be understood by the average patient. There are many helpful diagrams and reproductions of roentgenograms.

The Microbiology of Foods By Fred Wilbur Tanner B.S. M.S. Ph.D. Professor of Bacteriology and Head of the Department of Microbiology of Illinois Cloth Price \$7.50 1 p 708 Champaign Ill. Twin City Printing Company 1932

This comprehensive reference work presents the more important facts concerning micro-organisms and their significance in natural and commercially prepared foods, recognized methods for the examination of foods for micro-organisms, the activities of micro-organisms in their desirable and undesirable roles in the preparation and preservation of foods and discussions of methods of commercial and home preparation of foods. The subject matter is brought close to the original work by numerous references. Chapters are devoted to such subjects as food preservation, bacteriology of water and sewage, the microbiology of milk and milk products, fresh fruits and vegetables, sugar and sugar products, meats and meat products, eggs and other common foods, intestinal bacteriology, bacteria, yeasts and molds and their classification, identification and characteristics, and culture mediums and their preparation. The canning of foods and related problems are given especial attention. The volume is valuable to all concerned with the microbiology and preservation of foods and the health problems related to micro-organisms in food.

Medicolegal

Brain Tumor Attributed to Strain of Back

(*Royal Indemnity Co v Land (Ga), 164 S E 492*)

On December 5 or 6, 1930, while standing on a ladder and removing a book weighing about 75 pounds, Land wrenched his back. Previously, according to the testimony, he had been in perfect health. Now he complained of pain between his shoulder blades and assumed a semistooled position. He gave up work a few days later. A physician sent by the patient's employer diagnosed the case as "strained ligaments at the angle of the left scapula" and traumatic neurosis. Under the care of other physicians, however, the patient was operated on for a brain tumor, January 15. A large part of a malignant tumor of the brain was removed. What was left increased in size very rapidly and about three weeks later the patient died.

The widow of the deceased employee instituted proceedings under the workmen's compensation act, contending that the injury sustained by her husband created, or developed and aggravated, the tumor and so caused his death. The industrial commission of Georgia awarded compensation, and on appeal the award was sustained by the superior court of Fulton County. On further appeal, the judgment of that court was affirmed by the court of appeals of Georgia, division number 1.

On behalf of the claimant, the physician who operated testified that there is a feeling among people who deal with this particular type of condition that trauma may have an influence in regard to it, even if it is not the actual production or start of it. Cushing, he testified, says that it cannot be proved that trauma does not have an influence in the development of brain tumor, because in practically every case there is a history of trauma. During a terrific strain, according to this witness, there is a perfectly tremendous engorgement of the vessels of the brain, and the witness could not say that during the cerebral congestion that came with the strain in this case a small, slowly growing tumor was not suddenly caused to become a rapidly growing tumor. The tumor, he thought, could not have existed much longer than from the date of the injury.

The burden, said the industrial commissioner by whom compensation was awarded, should rest on the employers and their insurance carrier to show that, not the injury, but some intervening cause was the cause of death, and he held that the accident itself was as a matter of fact the proximate cause. No witness testified, said the court of appeals, that the tumor was not caused by the injury, and there was admittedly expert testimony that strongly indicated that the contrary was true, and the finding of the industrial commission on questions of fact is final and conclusive if supported by any evidence.

Evidence When Roentgenograms Are Admissible—In an action for damages for personal injuries, certain roentgenograms purporting to show the condition of the plaintiff's leg were admitted in evidence, over the defendant's objection. A proper foundation had not been laid for their introduction, the defendant contended, because no one who took the roentgenograms or saw them taken testified that they "truly represent the objects claimed" or concerning the position of the patient in relation to the tube and plate. If a competent witness, said the Supreme Court of Iowa, states that a roentgenogram correctly portrays the condition of the body to which it relates, or describes the relation of the x-ray machine to the body when a roentgenogram is taken and vouches for the correctness of the position described, the roentgenogram is admissible. Such testimony may be given either by the person who took the roentgenogram or by another witness who knows the facts. In this case the roentgenograms were taken by the superintendent of a hospital, who was skilled in operating x-ray machines. On the witness stand she named the part of the body exposed to the x-ray plate in each exhibit. She said of each exhibit that it showed the part of the body named. She took these roentgenograms for the purposes of the physician who was treating the plaintiff, and it is not likely that the superintendent of a hospital would distort an x-ray negative, knowing that it was going to be used by the physician in attendance on the case. The roentgenograms were properly admitted in evidence.—*Wosoba v Kenyon (Iowa), 243 N W 569*

Malpractice Physician's Liability After Liability of Person Responsible for Injuries Has Been Released—A minor was injured in an automobile accident. Her guardian and parents released the motorist from all liability. Later the guardian sued the defendant physician who had attended the patient, for damages for alleged malpractice in the course of treatment. If an injury is aggravated by unskilful treatment by a physician, said the Supreme Court of Iowa, and if reasonable care was observed in selecting the physician, the aggravation is an element of the damages for which the person responsible for the accident is liable. If the person by whom the injuries were inflicted is released from liability, no action can be maintained thereafter against some other person on the ground that he is responsible for some part of such injuries. A release of the person by whom the injuries were inflicted operates as release of a physician whose malpractice may have aggravated those injuries.—*Phillips v Werdorff (Iowa), 243 N W 525*

Evidence Admissibility of Hospital Records and Charts—In a will contest, the plaintiff claimed that she was the common law wife of the decedent. Over her objection, the trial court admitted in evidence certain charts and records of a hospital in which he had been a patient, in which he was described as a single man. This information was based on statements made by the decedent to hospital attendants. These charts and records, the Supreme Court of Minnesota held, were hearsay, self serving and inadmissible although there may be cases in which the circumstances are such as to make statements so recorded admissible as a part of the res gestae.—*Ghelm v Johnson (Minn), 243 N W 443*

Wills Opinions of Expert Witnesses on Subjects of Common Knowledge—In questions involving insanity or disease expert medical opinion is accepted from necessity, but when an expert's opinion rests on the simple facts of life and everyday occurrences it possesses no more value than the opinion of any other intelligent person. On matters of common knowledge and everyday experiences, the ordinarily intelligent man can make appropriate deductions and derive correct conclusions, and no basis exists for expiation by an expert.—*Dossenbach v Reidhar's Executor (Ky), 51 S W (2d) 465*

Society Proceedings

COMING MEETINGS

- Alabama, Medical Association of the State of, Montgomery, April 18 21 Dr D L Cannon, 519 Dexter Avenue, Montgomery, Secretary
- American Association of Anatomists, Cincinnati, April 13 15 Dr George W Corner, University of Rochester School of Medicine, Rochester, N Y, Secretary
- American Physiological Society, Cincinnati, April 10-12 Dr Frank C Mann, Mayo Institute, Rochester, Minn, Secretary
- American Society for Experimental Pathology, Cincinnati, April 10 12 Dr C Phillip Miller, Jr, University of Chicago Department of Medicine, Chicago, Secretary
- American Society for Pharmacology and Experimental Therapeutics, Cincinnati, April 10 Dr V E Henderson, Medical Building, University of Toronto, Toronto, Canada, Secretary
- American Society of Biological Chemistry, Cincinnati, April 10 12 Dr Howard B Lewis, University of Michigan Medical School, Ann Arbor, Mich, Secretary
- Arizona State Medical Association, Tucson, April 20 22 Dr D F Harbridge, 822 Professional Building, Phoenix, Secretary
- California Medical Association, Del Monte, April 24 27 Dr Emma W Pope, 450 Sutter Street, San Francisco, Secretary
- Federation of American Societies for Experimental Biology, Cincinnati, April 10 12 Dr C Phillip Miller, Jr, University of Chicago Department of Medicine, Chicago, Secretary
- Harvey Cushing Society, Louisville, Ky, April 13 14 Dr Tracy J Putnam, 818 Harrison Avenue, Boston, Secretary
- Louisiana State Medical Society, Lake Charles, April 25 27 Dr P T Talbot, 1430 Tulane Avenue, New Orleans, Secretary
- Maryland Medical and Chirurgical Faculty of, Baltimore, April 25 26 Dr Walter Dent Wise, 1211 Cathedral Street, Baltimore, Secretary
- New York, Medical Society of the State of, New York, April 3 5 Dr Daniel S Dougherty, 2 East 103d Street, New York, Secretary
- North Carolina Medical Society of the State of, Raleigh, April 17 19 Dr L B McBrayer, Southern Pines, Secretary
- South Carolina Medical Association, Spartanburg, April 18 19 Dr E. A. Hines, Seneca, Secretary
- Southeastern Surgical Congress, Atlanta, Ga, March 6-8 Dr B T Beasley, 45 Edgewood Avenue, Atlanta, Secretary
- Tennessee State Medical Association, Nashville, April 11 13 Dr H H Shoulters, 706 Church Street, Nashville, Secretary

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to *THE JOURNAL* in continental United States and Canada for a period of three days. Issues of periodicals are kept on file for a period of five years only. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below

American Journal of Cancer, New York

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- *Biologic Effectiveness of High Voltage and Low Voltage Roentgen Rays C Packard New York—p 1257
- Intensity and Wavelength Measurements with 12 Kilovolts Roentgen Rays F M Exner New York—p 1275
- *Spontaneous Regression of Peritoneal Implantations from Ovarian Papillary Cystadenoma. H. C Taylor Jr, and W E Alsop, New York—p 1305
- *Fibromyositis Unclassified Plexiform Endolymphatic Proliferation of Uterus Report of Three Cases R T Frank New York—p 1326
- Veroderma Pigmentosum Report of Four Cases M M Copeland and H E Martin New York—p 1337
- *Multiple Primary Malignant Tumors Survey of Literature and Statistical Study S Warren and Olive Gates Boston—p 1358
- Adenolymphoma (Onkocytoma) of Parotid Gland R H Jaffe Chicago—p 1415
- *Relationship of Calcium Metabolism to Diseases of Bone D P Barr St Louis—p 1424
- *Diagnosis of Diffuse Endothelial Myeloma (Ewing's Sarcoma) M B Clopton and N A Womack St. Louis—p 1444
- Metastatic Malignant Lesions in Bone C G Sutherland F H Decker and E I L Cilley Rochester Minn—p 1457
- Oxygen Carbon Dioxide and Acidosis in Treatment of Cancer with Especial Reference to Fischer Wasels Treatment C C Lund and Hilda M Holton Boston—p 1489
- Note on Detection and Quantitative Determination of Chromium in Tumors A Dingwall and H T Beans New York—p 1499
- *Tar in Cigarette Smoke and Its Possible Effects W D McNally Chicago—p 1502
- *Tobacco Tar Experimental Investigation of Its Alleged Carcinogenic Action E Bogen and R N Loomis Olive View Calif—p 1515
- Cancer Educational Program G S Foster Manchester N H—p 1522

Biologic Effectiveness of Roentgen Rays—Packard studied the biologic effectiveness of roentgen-ray beams of wavelengths 0.05, 0.08 and 1.70 angstrom units, produced at 550, 300 and 12 kilovolts respectively. The test objects were *Drosophila* eggs and mouse tumor tissue. Equal doses of these three qualities of radiation, measured by air ionization chambers produced equal quantitative results. The eggs in their reaction showed complete independence of wavelength. These data confirm the conclusions previously arrived at in experiments with wavelengths of 0.2, 0.3, 0.5 and 0.7 angstrom units.

Regression of Peritoneal Implantations from Cystadenoma—Taylor and Alsop say that the distinguishing clinical features of cases of ovarian papillary cystadenomas with benign peritoneal implants are the gradual development and slow progress of the disease, the marked ascites, and the patient's youth. The onset is insidious but occasionally the abdominal enlargement may follow an attack of acute pain, which the earlier authors interpreted as indicative of rupture and dissemination of the intracystic vegetations. Loss of weight and strength are common, and patients may live for long periods in a state of marked cachexia. Ascites is the rule the fluid being sometimes clear and sometimes sanguineous. Hydrothorax has been reported in cases in which a complete recovery has eventually occurred. In many cases tapping is done repeatedly before the first operation, and not a few patients have undergone a simple celiotomy before the definitive operation for removal of the primary tumor. When ascites is found complicating a slowly progressing ovarian tumor in a young woman a benign papillary cystadenoma with peritoneal implants may be suspected but such a favorable type of growth is extremely rare in women older than 50. The existence of the tumors whose peritoneal dissemination will under certain circumstances disappear has a direct bearing on the treatment of ovarian neoplasms and their recognition either at the operation or in the laboratory, becomes a matter of importance.

The possibility of finding such a tumor is the justification for exploration in certain cases of ovarian growths, particularly in young women, in which clinical examination alone points to an incurable condition. If the type with benign implants is found, disappearance of these may be hoped for if the primary growths are removed. When the tumor is technically inoperable, celiotomy alone may apparently have such a beneficial effect that at a second operation extirpation of the growth is possible. Peritoneal implantations found at operation should be carefully inspected, and if they are thought to be benign, every effort should be made to remove the principal masses of growth. In nearly a third of all reported cases presenting these implants two operations have been performed, because through misinterpretation of the gross observations the first surgeon has limited himself to an exploratory operation. It is possible that at least a few women have been allowed to die unnecessarily because surgeon and pathologist took too hopeless a view of the prognosis. When the benign character of the tissue is first discovered in the laboratory after a simple exploration alone has been performed, serious consideration should be given the advisability of almost immediate reoperation. Should recurrence develop or ascites reappear some time after removal of part of such a growth, a second operation is indicated, for apparently permanent cures have been reported even after a series of four operations. The success of repeated operations led at one time to the recommendation of this procedure as a regular measure for metastatic peritoneal growths of ovarian origin and it was widely known, after its chief advocate, as the Pozzi treatment. Although Pozzi himself believed that celiotomy might benefit even cases of cancer, the evidence at hand leads to the conclusion that second operations are justified only in the benign type of papillary cystadenoma and perhaps sometimes in the most differentiated adenocarcinomas. From the histologic characteristics of these tumors it might be expected that roentgen therapy would be of little value. A failure to produce improvement by roentgen therapy in a case afterward cured by surgery has been reported by Wintz, who pointed out that roentgen therapy might even have the effect of increasing the ascites by irritating the peritoneum. The mistaken inclusion of a few of these cases in a series of supposed carcinomas treated by surgical removal of the primary growths and postoperative roentgen irradiation for the peritoneal metastases may, however, lead to entirely erroneous conclusions as to the value of irradiation in malignant tumors of the ovary.

Fibromyositis—Frank reports three cases of a heretofore undescribed form of diffuse intramural new growth of the corpus uteri, which clinically masquerades under the guise of adenomyoma or diffuse "fibrosis" of the uterus. The point of origin of these tumors remains undetermined, as in all three instances the absence of myomas and the presence of a normal endometrium of both corpus and cervix afforded no clue. From the study of the three cases the following conclusions seem warranted: 1 Diffuse endolymphatic fibromyositis of the uterus, although rare, appears to form a distinct entity. 2 The onset is characterized by marked and repeated uterine hemorrhages. 3 A slow, uniform and symmetrical enlargement of the uterus occurs. 4 From the observations a clinical diagnosis of myoma or adenomyoma is warranted. 5 At operation the observations are such as to justify a similar diagnosis and consequently supravaginal hysterectomy is performed. 6 From the gross specimen, the pathologist makes the diagnosis of diffuse adenomyositis or functional "fibrosis." 7 Microscopic study shows diffuse endolymphatic distribution with no evidence of a primary site. 8 The endometrium is normal. 9 From the cases so far observed, this type of neoplasm appears to be slow growing and with only a moderate degree of clinical malignant changes. No final conclusion as to its radiosensitivity can as yet be offered.

Malignant Tumors—Warren and Gates collected 794 cases of multiple malignant conditions from the literature. These, together with the 189 cases of Major, the 143 of Owen, the 93 of Hard and the 40 of their own make a total of 1,259. On the basis of all statistics, the frequency of multiple malignant conditions is 184 per cent of cancer cases. On the basis of American statistics the frequency is 39 per cent. In the authors' series of 1,078 cancer necropsies, the frequency is 37 per cent. The average duration from the onset of the earlier

tumor to death in their cases is three years. Multiple cancers occur at approximately the same age as single cancers. Multiple malignant tumors occur more frequently than can be explained on the basis of chance. This may be explained by a predisposition or susceptibility to cancer in certain persons, or the action of some factor favoring the development of a malignant condition. The nature of this predisposition is as yet unknown.

Calcium Metabolism and Diseases of Bone—Barr calls attention to the fact that decalcification of the skeleton may arise from diverse causes. It has been observed in association with disuse, as in arthritis, fractures, and other conditions enforcing prolonged and extreme inactivity, also in rickets, hunger and war osteopathies, osteomalacia and celiac rickets, all of which conditions are apparently dependent on a lack or loss of vitamin D and lack of sunlight, and more or less readily controlled by supplying these missing factors. It is seen in association with increased function of the parathyroids, both experimentally following the injection of parathyroid extract and in the clinical condition of osteitis fibrosa cystica, the most effective treatment of which is removal of abnormal parathyroid tissue. The objective finding of decalcification must be carefully differentiated. The terms osteomalacia and osteoporosis, while perhaps sufficiently exact at the time they were devised, have been used as catch baskets for a great variety of obscure clinical conditions and are not helpful in the functional explanation of differences in bone texture. Physiologic considerations in the differentiation of decalcification are not only essential to proper diagnosis but are of the greatest importance in treatment. The comparatively rare diseases in which there is too great calcification in bones have been insufficiently studied. In Paget's disease and in osteosclerosis there is much indirect evidence of disturbances in calcium metabolism.

Diagnosis of Diffuse Endothelial Myeloma—Clopton and Womack believe that while the diagnosis of endothelial myeloma may be made in a certain percentage of cases without resorting to biopsy, often this is not possible. In fact, there are times when even with biopsy the classification of primary medullary tumors of bone is difficult. Whether biopsy is or is not to be done is still a moot point. These tumors are not of sufficiently frequent occurrence to provide statistical data as to the actual danger of this procedure. On purely theoretical grounds and on the observation of a limited number of cases, it may be said that there are perhaps times when this operation has hastened the dissemination of the growth. It would seem, therefore, since these tumors are so markedly radiosensitive, that Ewing's contention for diagnostic radiotherapy is not a bad one. While as yet the authors have had no experience with such a method of attack, it appears to them to be both safe and rational. If, when the diagnosis cannot be made without biopsy, the patient may be given a therapeutic dose of radium or roentgen rays, the reaction is both early and marked in tumors of the endothelial myeloma class. This, of course, is not true of osteomyelitis, and roentgen rays usually have no effect on osteogenic sarcoma.

Tar in Cigaret Smoke and Its Effects—According to McNally, the tar of cigaret smoke contains nicotine, phenolic bodies, pyridine bases, and ammonia, irritants which could account for "cigaret cough," the chronic bronchitis of the cigaret smoker, the leukoplakia in heavy smokers, and the recorded increase of cancer of the lung. The temperature is not an important factor unless the cigaret is burned down to the last centimeter, when the hot smoke becomes more irritating. With a tarry residue of from 4.84 to 15.29 per cent, a definite risk attaches to the smoking of a cigaret. Cigarets should not be smoked too short, as most of the tar and other products of incomplete combustion are retained in the last two centimeters.

Tobacco Tar—Bogen and Loomis describe experiments from which they conclude that the cutaneous application of tar derived from the destructive distillation of tobacco does not possess the irritating and epithelial stimulating properties that lead to the production of neoplastic growths, as tested on the skin of mice and rabbits. That man is similarly unaffected is not proved but is probable, since, although different species show marked differences in their susceptibility to carcinogenic agents, these appear to be quantitative rather than qualitative and a special species susceptibility to particular agents is not yet established. At any rate, in the light of these observations, it

appears highly improbable that the tar obtained during the act of smoking is an important factor in the development of cancer of the oral cavity of man. The prevailing, though not unanimous, clinical observation that cancer of the mouth is unduly prevalent among those accustomed to the use of tobacco is by no means controverted by these observations. Even though the tarry substance settling out from tobacco smoke may fail to show any appreciable carcinogenic properties, there are other factors in the smoking of tobacco which may prove to be potent agents in the production of malignant changes. The mechanical irritation from the presence of a solid object in the mouth may deserve further attention in this connection. The frequent thickening of the lips under the place often occupied by a pipe or a cigaret holder, the development of leukoplakia or smokers' patches on the adjacent mucous membranes, and similar lesions may be early manifestations of reaction to repeated physical trauma which, if continued, will lead to malignant changes. Measures to mitigate the harmful effects of tobacco smoking in the host of persons who find it difficult or impossible to cease the habit, especially in the face of symptoms making this desirable, are obviously to be recommended from the point of view of the medical practitioner. Unfortunately, the commercial claims of interested parties forms no safe guide in this attempt. The blatant claims of "denicotinized" tobacco venders, whose own advertisements disclose an amount of nicotine remaining in the tobacco as great as or greater than that naturally encountered in some tobaccos not so treated, the unfounded appeals for various other brands, and more recently the exploitation of proprietary solutions alleged to "detoxify" the nicotine in a cigaret, which on investigation have been found to be completely without value, emphasize the necessity for caution in accepting information from interested commercial sources. The use of a mechanical device which removes a large part of the tobacco tar but little of the other more active agents in cigaret smoke should receive favorable consideration from medical men only in the event that such tar may be demonstrated to be in itself a source of danger. The results of the authors' investigation indicate that, whatever carcinogenic properties may inhere in the use of tobacco, they cannot well be ascribed to the chemical effect of the tar derived from distillation of the tobacco, and that the patient with leukoplakia or other reasons for fearing susceptibility to cancer of the mouth or lungs would do well not to rely on such a device for his protection.

Am J Roentgenol & Rad Therapy, Springfield, Ill

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Dissecting Aneurysm of Aorta, with Especial Reference to Its Roentgenographic Features. F. C. Wood, E. P. Pendergrass and H. W. Ostrum, Philadelphia—p. 437

*Differential Diagnosis of Organic Heart Disease by Roentgen Ray. G. Levene and W. D. Reid, Boston—p. 466

Congenital Arteriovenous Communication. F. G. Lindemulder, Ann Arbor, Mich.—p. 481

Hip Joint from Standpoint of Roentgenologist. L. B. Morrison, Boston—p. 484

*Method of Treating Carcinoma of Vulva. M. Friedman, Newark, N. J.—p. 521

Unfiltered Roentgen Rays for Superficial Cancers of Wide and Deep Involvement. B. P. Widmann, Philadelphia—p. 526

*Shadows of Fenestrated Ribs in Roentgenograms. H. C. Sweany, Chicago—p. 541

Thyratron Peak Voltmeter. C. Weyl, S. R. Warren, Jr., and C. J. Garrahan, Philadelphia—p. 544

Differential Diagnosis of Organic Heart Disease—Levene and Reid state that the value of the roentgen ray in the diagnosis of heart disease does not end with the detection of cardiac enlargement. With increasing experience it is possible to derive from careful roentgenographic and roentgenoscopic studies specific information regarding the presence and identification of valvular disease, the integrity of the myocardium and the functional state of the heart as a whole. Distinctive cardiopathies usually produce characteristic alterations in the form of the heart. These changes may be shown by measurement of the heart shadow and of its component parts, revealing not only a gross enlargement of the organ but an altered interrelationship of its chambers, making it frequently possible to identify the anatomic lesions of the heart. Roentgenoscopic examination permits of an appraisal of the functional integrity of the heart and the identification of the various arrhythmias. It is apparent that the interpretation of these changes depends not only on careful roentgenologic technic but equally on a

working knowledge of the clinical and pathologic aspects of heart disease

Carcinoma of Vulva—Friedman outlines a method for the treatment of carcinoma of the vulva by combining surgical endothermy, radium and roentgen rays. The local lesion may be treated by the interstitial insertion of gold radon seeds or by electro-surgical removal. It is preferable to remove the malignant mass with the electro-surgical knife. Only the tumor and the invaded tissues close to the tumor should be excised. After the tumor is removed, the edges of the wound are sewed together. This suture line usually breaks down in varying degrees during the subsequent radium reaction. External irradiation of the tumor bearing area postoperatively is accomplished holding the radium in position with the aid of a wax mold and the sutures have not been removed. The radium tubes are melted into the mold with a melting iron. The radium itself should be filtered heavily with from 3 to 4 mm of lead or its equivalent, and employed in units of from 5 to 25 mg of radium in each tube. Two tubes are placed in the vagina three, if the growth has involved the clitoris. The rest are distributed on the mold to surmount the labia and perineum up to the inguinal fold. From eight to twelve tubes may be employed. The smaller tubes or needles of 5 or 10 mg are preferable because they permit the administration of the dose over a longer period. If a full treatment is to be given, and then repeated in two weeks one can allow 500 mg-hours for each tube. The success of the treatment depends more on the eradication of the sub-born metastatic invasion of the inguinal nodes than on the treatment of the local lesion. The combination of external interstitial irradiation in treating these glands is more successful than surgery alone, or surgery and irradiation. External irradiation is accomplished with high voltage roentgen therapy or the radium pack. When roentgen therapy is employed, the voltage and distance are not as important as the total quantity of radiation administered, because the glands are superficial and do not require deeply penetrating rays to reach them. The utilization of the saturation technic of daily divided doses permits the administration of 250 per cent skin erythema dose in two weeks with no damage to the normal tissues. If a radium pack is used the skin target distance need not exceed 4 cm and a small quantity of radium (from 100 to 200 mg) may be used in order to provide a dose of from 10 000 to 12 000 mg hours over each area. Following this, gold radon seeds should be implanted in the nodes to bring the dose in the tissues up to from 10 to 12 skin erythema doses according to the method of Martin and Quimby. The quantity of radon should be reduced in those areas close to the femoral vessels for fear of thrombosis or rupture.

Shadows of Fenestrated Ribs—Sweany makes a report of his observations on fenestrated and forked ribs in tuberculous patients with emphasis on the interpretation of such shadows in roentgenograms. Although perhaps low, because of the difficulty of making observations on tuberculous patients an incidence of 0.4 per cent was found in nearly 2 500 patients. Seven out of nine were in men and one was bilateral. The third right and the fourth left ribs are most frequently involved. In his experience he found that the fenestrated third and fourth ribs produce annular shadows that may interfere with the interpretation of hilar shadows especially on single plates. The author was able to follow one patient from the early stages of a superimposed abscess on a tuberculous lung to necrosis, of which he presents illustrations.

California and Western Medicine, San Francisco

37 361-432 (Dec) 1932

- Principles of Prophylaxis Against Typhoid Whooping Cough Scarlet Fever and Smallpox K F Meyer San Francisco—p 361
Vaccination Problem Review of Abortion Cases at Highland Hospital C A DePuy Oakland—p 368
Treatment of Ear Malignancies H J Ullmann Santa Barbara—p 369
The Fatalization of Veterans T W Bath Reno Nev—p 370
Medical Care and Health Survey of Unemployed Men in San Francisco A A David and M Warner San Francisco—p 372
Dermatologic Diagnosis M S Holt Los Angeles—p 375
Diagnosis Study of Indian Medicine C O Sappington Chicago—p 376
New California Case Records Suggested Outline F L Patry Albany

Canadian Medical Association Journal, Montreal

27: 463 582 (Nov) 1932

- Influence of Gastric Mucus on Peptic Digestion B P Bahkin and S A Komarov Montreal—p 463
Cholecystitis Bacteriologic and Experimental Study W Magner and J M Hutcheson Toronto—p 469
Tumors of Spermatic Cord with Report of Case of Fibromyxosarcoma D W MacKenzie and M Ratner Montreal—p 477
Posterior Sinusitis L deV Chipman St John N B—p 481
Case of Kerion Celsi Associated with Ringworm of Eyelashes and Accompanied by Trichophytid A M Davidson and P H Gregory Winnipeg—p 485
Reading with Closed Eyes A H Pirie Montreal—p 488
Serologic and Clinical Investigation of Individuals Exposed to Brucella Abortus E P Johns F J H Campbell and C S Tennant Woodstock Ont—p 490
Use of Insulin as Aid in Treatment of Pulmonary Tuberculosis T G Heaton Toronto—p 498
Is Polycythemia Vera the Antithesis of Pernicious Anemia? W D Patton J Allardye and T McKeown Vancouver B C—p 502
Case of Subarachnoid Hemorrhage with Recovery B C—p 502
Treatment of Displacements of Uterus H W Johnston Toronto—p 513
Observations on Case of Congenital Absence of Hepatic and Common Bile Ducts J B Scriven Montreal—p 517
New Factor in Blood Pressure R Boucher and G Lafresniere Montreal—p 519
Rationale of Radiotherapy E E Shepley Saskatoon Sask—p 521

Cholecystitis—Magner and Hutcheson found streptococci, staphylococci and Bacillus coli most frequently in cultures of the gallbladder wall. There was no significant difference in the frequency with which each of these organisms was isolated. Streptococci were isolated from 37 per cent of the 200 human gallbladders that had been removed by surgical operation, B coli was isolated from 28 per cent of these specimens, staphylococci from 37 per cent, and other bacteria from 24 per cent. In their experimental study, the authors produced chronic cholecystitis in 100 per cent of cases by injecting bladder streptococci under the serous coat of a rabbit's gallbladder. Chronic cholecystitis developed in a small percentage of the experiments in which typical streptococci were injected into the lumen of the gallbladder, the liver and the portal vein, and in a much higher percentage of these experiments when the cystic duct was ligated previous to injection of the organisms. Chronic cholecystitis failed to develop in nineteen cases as the result of simple injection of typical streptococci into the ear vein, in nine experiments in which typical streptococci were injected into the wall of the duodenum, and in seven cases in which typical streptococci were injected into the wall of the appendix. The incidence of the development of cholecystitis as a result of the implantation of streptococci in situations other than the gallbladder wall was increased by previous ligation of the cystic duct. Simple ligation of the cystic duct caused atrophy of the gallbladder mucosa and slight fibrous thickening of the wall in one of eight experiments, calculi were found in the fibrosed gallbladder, in another, the gallbladder showed a true chronic cholecystitis. Ligation of the cystic duct and of the cystic blood vessels produced necrosis of the gallbladder wall, accompanied by a polymorphonuclear infiltration of the necrosing tissues. Cholecystitis did not follow the injection of atypical streptococci into the gallbladder wall the gallbladder lumen or the portal vein. Injection of B coli into the gangrenous cholecystitis. The authors conclude that chronic cholecystitis in man is probably due in most cases, to a streptococcal intramural infection of the gallbladder. In one of their cases B paratyphosus B was isolated in pure culture from the chronically inflamed gallbladder of a patient who had been in the hospital about one year previously suffering from paratyphoid fever. Chronic cholecystitis appeared to be a naturally occurring disease in 2 of 200 untreated rabbits.

Kerion Celsi Associated with Ringworm—Davidson and Gregory report two cases of kerion associated with Trichophyton album. One of the patients also showed a lesion of the eyelid from which the same fungus was isolated. The authors draw attention to the rarity of this condition. The authors were brothers and the probable source of infection was cattle. Each patient developed a trichophytid of the lichenoid type during the third and fourth weeks, respectively, of the disease. The treatment used was boric acid and starch poultices applied to the kerion. The kerion and the eyelid lesions disappeared after the development of the trichophytid. The appearance of

the trichophytid is considered to have been associated with the development of a specific immunity, which was responsible for the spontaneous cure

Insulin in Treatment of Tuberculosis—Heaton points out that little or no benefit may be expected from insulin treatment in acutely active or terminal cases of pulmonary tuberculosis. Insulin has a real place in the treatment of chronic forms of pulmonary tuberculosis, febrile or afebrile, if the patient is undernourished. In some of these cases, insulin is the best drug treatment. A prolonged period of clinical improvement may be initiated by a course of insulin treatment. The dose must be adjusted to suit the patient, the desired effect being an increased appetite without additional unpleasant symptoms. The injection should be given half an hour before the meal. Insulin may be given with benefit over a prolonged period, with intervals of omission. A large proportion of patients fail to experience an increased appetite under insulin treatment and do not gain weight. The author suggests that this failure is due to variations in the dextrose tolerance or insulin sensitivity of these patients. No febrile reactions occurred in the author's sixteen patients. He encountered one case of allergic hypersensitivity, and the giving of the insulin was followed by a hemorrhage. This patient did not have a local reaction to an injection of a solution of crystalline insulin. Some tuberculous patients react to much less insulin than will cause a reaction in a normal person. Therefore the initial dose should not be over 5 units. The special indications for insulin are (1) in preparation for an operation and (2) in loss of weight under artificial pneumothorax.

Polycythemia Vera—Patton and his associates submit evidence for the division of polycythemia vera into an early and an advanced stage. They present data which strongly point to polycythemia vera as the antithesis of pernicious anemia. They conclude that, in normal human blood, cholesterol is unevenly distributed between cells and plasma, there being a greater concentration in the latter. In polycythemia vera there is a considerable increase in the plasma cholesterol, while the cell cholesterol is but slightly altered. In pernicious anemia there is a decided decrease in the plasma cholesterol and, in the more severe cases, a less striking decrease in the cell cholesterol. Cholesterol values for whole blood, particularly in the advanced stage of polycythemia vera, are of little significance. With the general improvement in pernicious anemia resulting from liver treatment there is a return to the normal cholesterol levels and distribution. The rise of the blood cholesterol in pernicious anemia following liver treatment is not necessarily due to the cholesterol in the diet but is more likely due to increased synthesis or to a greater absorption of bile cholesterol. Cell and plasma uric acid and serum calcium show no significant changes in polycythemia vera or in pernicious anemia.

Endocrinology, Los Angeles

16 597 711 (Nov-Dec) 1932

- *A Critic of Endocrine Therapy J C Aub, Boston—p 597
- *Juvenile Obesity H R Rony, Chicago—p 601
- Some Observations on Anterior Lobe Hyperpituitarism J K Tancher, Atlanta, Ga—p 611
- Studies in Experimental Production of Simple Goiter B Webster, New Orleans—p 617
- Spontaneous Activity in Male Rats in Relation to Testis Hormone R E Heller, Chicago—p 626
- Evidence on Chief Function of Adrenal Cortex S W Britton, University, Va—p 633
- Effect of Adrenaline Chloride on Proliferative Activity of Cells of Adrenal Medulla F A McJunkin, R R Rall and P L Singer, Chicago—p 635
- *Experimental Analysis of Certain Pituitary Adrenal Gonad Relationships W J Atwell, Buffalo—p 639
- Further Studies on Estrin Hypophyseal Antagonism in White Rat J Spencer, F E D'Amour and R G Gustavson, Denver—p 647
- Influence of Estrin on Gonad Stimulating Complex of Anterior Pituitary of Castrated Male and Female Rats R K Meyer, S L Leonard, F L Hisaw and S J Martin, Rochester, N Y—p 655
- Relation of Adrenal Glands to Relative Erythrocyte Volume E von Haam and H S Thatcher, New Orleans—p 666

Endocrine Therapy—Aub believes that one should not lay too much stress on endocrine therapy alone. In abnormalities that are largely metabolic in nature, attention to general principles is often of great importance. For example, in obese amenorrheic patients, reduction in weight alone will often be followed by regular menstrual cycles. Removal of foci of

infection will often reduce the intensity of hyperthyroidism. Attention to the factors of general hygiene and metabolism, which formerly were carefully observed in diabetes, are still of value in spite of the great help of insulin. The author stresses these simple principles because they are frequently neglected in modern therapy.

Juvenile Obesity—According to Rony, the juvenile age constitutes a sensitive test period for the detection and identification of glandular disturbances, by virtue of the known marked effects of the glands on somatic, sexual and mental development. He studied fifty unselected cases of obesity in childhood and adolescence for the possible role of endocrine disturbances in the etiology of obesity. Disturbances of the pituitary and sex glands, moderately low basal metabolism without hypothyroidism, abnormal sugar tolerance and mental deficiencies are frequent observations in juvenile obesity. Only six of the fifty cases studied showed no abnormal conditions in at least one of these fields. However, the anomalies found represent deviations from the normal in both directions, since in some cases hypofunction and in others hyperfunction of the same gland was found. This along with other observations strongly suggests that there is a relationship between endocrine anomalies and obesity, but it is not of etiologic nature. The etiology of obesity, juvenile or adult, "exogenous" or "endogenous," is apparently uniform. It is a disturbance of the mechanism that regulates the body fat content and is probably hypothalamic in origin.

Pituitary-Suprarenal-Gonad Relationships—Atwell reports that injection of a potent cortical suprarenal extract (cortin, Hartman) over a period of two months, beginning at 5 months of age, stimulated the ovaries of hypophysectomized tadpoles of *Rana sylvatica*. Such ovaries averaged nearly two and one-half times the size of ovaries from untreated hypophysectomized controls. Twenty rats were hypophysectomized by the parapharyngeal route. Nine of these were injected subcutaneously twice daily with cortin in doses varying from 0.5 to 2 cc for each injection. This treatment partially relieved the characteristic asthenia and hypothermia and partially restored spontaneous activity, without any apparent reparation of the atrophic thyroid, suprarenals or gonads, and without any effect on growth.

Journal of Experimental Medicine, New York

56 609 775 (Nov 1) 1932

- Relationship of Streptococcus Hemolyticus to Rheumatic Process I Observations on Ecology of Hemolytic Streptococcus in Relation to Epidemiology of Rheumatic Fever A F Coburn and Ruth H Pauli, New York—p 609
- Id II Observations on Biologic Character of Streptococcus Hemolyticus Associated with Rheumatic Disease A F Coburn and Ruth H Pauli, New York—p 633
- Id III Observations on Immunologic Responses of Rheumatic Subjects to Hemolytic Streptococcus A F Coburn and Ruth H Pauli, New York—p 651
- Phenomenon of Local Skin Reactivity to Bacterial Filtrates Reactivating Effect of Blood Serum on Completely Neutralized Toxic Filtrates G Shwartzman, New York—p 677
- Id Formation of Reacting Factors in Vivo G Shwartzman, New York—p 687
- Properties of Causative Agent of Chicken Tumor VII Separation of Associated Inhibitor from Tumor Extracts J B Murphy and E Sturm, New York—p 705
- Id VIII Effect of Testicle Extract on Rate of Growth of Chicken Tumor I E Sturm and F Duran Reynals, New York—p 711
- Studies on Physiologic Effects of Fever Temperatures I Constant Water Baths for Determination of Thermal Death Time of Bacteria F W Bishop, C M Carpenter and S L Warren, Rochester, N Y—p 719
- Id II Effect of Repeated Short Wave (30 Meter) Fevers on Growth and Fertility of Rabbits Ruth A Boak C M Carpenter and S L Warren, Rochester, N Y—p 725
- *Id III Thermal Death Time of Treponema Pallidum in Vitro, with Especial Reference to Fever Temperatures Ruth A Boak, C M Carpenter and S L Warren, Rochester, N Y—p 741
- *Id IV Healing of Experimental Syphilis Lesions in Rabbits by Short Wave Fevers C M Carpenter, Ruth A Boak and S L Warren, Rochester, N Y—p 751
- Etiology of Bartonella Muris Anemia of Albino Rat Isolation of Bartonella Muris Jessie Marmarston Gottesman and D Perla, New York—p 763

Effects of Fever Temperatures on Spirochaeta Pallida—Boak and her associates determined the thermal death time of *Spirochaeta pallida* in extracts from lesions in rabbits' testes in vitro at fever temperature, using the Zinsser-Hopkins and Nichols strains. The criteria to determine the persistence of

infectivity of the heated extract were the following: the development of lesions on inoculation into rabbits, dark field examination of tissue from the lesions, and the outcome of blood Wassermann tests and reinoculation tests. The thermal death time of the two strains of spirochetes was approximately the same, although the Nichols strain was somewhat the more resistant. In the case of the latter, five hours at 39 C (102.2 F), three hours at 40 C (104 F), two hours at 41 C (105.8 F) and one hour at 41.5 C (106.7 F) were required to render infective extracts innocuous to other rabbits. The thermal death time of *Spirochaeta pallida* in testicular extracts in vitro at fever temperatures is so short as to suggest that induced fever may be useful therapeutically in human syphilis.

Fever Treatment in Experimental Syphilis—According to Carpenter and his associates, multiple, unsustained fevers of from 41 to 42 C (105.8 to 107.6 F) produced by irradiation in a high frequency electrostatic field (10,000 kilocycles) destroyed *Spirochaeta pallida* in rabbits with active syphilitic lesions as determined by the injection into normal rabbits of extracts prepared from their testes and popliteal lymph nodes. One febrile period of six hours at a temperature of from 41.5 to 42 C (106.7 to 107.6 F) was likewise found to be sufficient to destroy the spirochetes. Infection with *Spirochaeta pallida* persisted in a control series of untreated rabbits for as long as 395 days after inoculation, but clinical healing occurred in from three to four months after injection. The time interval between inoculation and fever treatment, or between the end of the fever treatment and reinoculation, did not affect the results. The fever treatment was effective at any stage of experimental syphilis in rabbits.

Journal of Lab and Clinical Medicine, St. Louis

17 1185 1294 (Sept.) 1932

*Value of Aqueous Equine Liver Extract Glycerated Iron and Hemoglobin in Treatment of Secondary Anemias. O. Richter, A. E. Meyer and Helen Legere. Chicago—p. 1185.

*Liver Extract in Treatment of Diabetes Mellitus. I. Effect of Dried Liver Extract on Five Diabetic Children. II. Effect of Dried Liver Extract on Adult Diabetic Patients. Elaine P. Ralli, New York.—p. 1204.

Effect of Liver Extract on Bile Pigment Formation. M. S. Kim. Chicago—p. 1223.

Carbon Dioxide Changes in Alveolar Air and Blood Plasma or Serum After Subcutaneous Histamine Injection in Human Beings. L. Martin and M. Morgenstern. Baltimore—p. 1228.

*Intradermal Test for Determination of Malignancy. B. Gruskin. Philadelphia—p. 1237.

Treatment of Secondary Anemias—Richter and his associates treated 112 patients with secondary anemia due to various causes with 1½ ounces daily of B1 105, a preparation consisting of concentrated whole liver, iron in glycerin and defibrinated blood. An analysis of the preparation showed that 1½ ounces of the preparation contained the extract of 84.4 Gm of whole liver, a total of 104.24 mg of metallic iron (6.75 mg from the liver, 5.62 mg from hemoglobin and 91.87 mg from the neutral glycerin-iron compound) and a total of 1.4 mg of metallic copper. The rationale of the preparation that they used is discussed. A large percentage of their group of patients showed hematologic and clinical improvement on receiving the whole liver-iron preparation and other indicated therapy. The authors state with confidence that the improvement of eleven of the patients can be accounted for primarily on the basis of having received the whole liver-iron preparation. Further evidence as to the effectiveness of this preparation was shown by the drop in hemoglobin and red cells when treatment was discontinued in twenty-one patients representing the various groups previously treated and discharged as normal. Hematologic recovery was obtained when treatment was again instituted under 'home' conditions. Their study has impressed them particularly in regard to the numerous and almost insurmountable difficulties inherent in the problem of determining clinically the value of a therapeutic agent in the hemorrhagic and idiopathic secondary anemias.

Liver Extract in Diabetes Mellitus—Ralli reviews the literature and presents the results she obtained with liver extract in the treatment of thirteen patients with diabetes mellitus. She concludes that in the treatment of diabetes one is always impressed with the ability of the patient to increase his carbohydrate tolerance by adherence to diet and insulin

and if these patients are followed over a period of time the results are, in the majority of cases, striking. This makes it difficult to draw any conclusions as to the effect of a given type of therapy on the course of the disease. In her study the patients were observed for periods of not less than one year and received the extract for never less than five months and in most of the cases for more than five months. Therefore it seems reasonable to conclude that if any improvement was to occur it would have taken place during this prolonged period of observation. In view of this fact one does not feel justified in attributing to liver extract any effect similar to that of insulin on the hyperglycemia or glycosuria of diabetic patients. Her results do not substantiate the observations of Blotner and Murphy. In the young patients observed, neither the dry nor the moist liver extract had any effect on the hyperglycemia, nor was it possible to reduce the insulin requirement during the period of liver therapy. While her observations have been in progress, other investigators have reported a similar lack of effect of liver extract in diabetes.

Intradermal Test for Determination of Malignant Conditions—Gruskin introduces an intradermal test for the determination of malignant conditions, in which 0.2 cc of the antigen is injected intradermally with an extremely fine needle. The injection should not be forced, so that no false pseudopods will be formed. In positive cases, a slight area of inflammation with pseudopod formation appears within fifteen minutes. In negative cases, no such reaction takes place. It is advisable to use a control of physiologic solution of sodium chloride with each test. The control must always be negative, showing no inflammation and no pseudopods. The antigen is made up of purely embryonic tissue obtained from the pancreas and submaxillary glands of embryonic calves, in the case of carcinoma, and of Wharton's jelly and red bone marrow in the case of sarcoma. The author believes that the characteristic embryonic protein is not only carried in the blood stream but also finds response in the fixed cells, as expressed by the allergic reaction. The correct results obtained in a great number of positive and negative cases have been demonstrated, so that he feels justified in publishing this preliminary report. In 116 cases of intradermal tests done on students under the auspices of Fanz, head of the Department of Pathology of Temple University School of Medicine, the following results were obtained. No reactions occurred in 107 students. Eight students gave a slight reaction to carcinoma, and of these one had a maternal history of malignant conditions for three generations, one had a maternal history of malignant conditions for two generations, and six had a family history of malignant conditions for one generation. One student gave a slight reaction to sarcoma and no reaction to carcinoma. He had a paternal history of sarcoma.

New England Journal of Medicine, Boston

207 767 814 (Nov. 3) 1932

Pneumococcus Endocarditis. F. T. Lord, Boston—p. 767.

*Acute Bacterial Endocarditis. C. Phipps. Boston—p. 768.

Subacute Streptococcus Endocarditis. H. Morrison, Boston—p. 770.

Acute Monocytic Leukemia Case. S. N. Gardner. Salem, Mass.—p. 776.

*Attenuation of Measles. C. C. Stewart. Hanover, N. H.—p. 780.

Some Pathologic Problems. A. C. Johnston. Gorham, N. H.—p. 783.

Progress in Surgery of Sympathetic Nervous System in 1931. J. C. White. Boston—p. 788.

Acute Bacterial Endocarditis—Phipps states that acute bacterial endocarditis is in general a fulminating process with a rapidly fatal outcome and, although in many instances the cardiac manifestations may be the most striking, the picture is largely one of an acute sepsis modified by the underlying condition or exciting cause. The author reports forty-four cases of acute bacterial endocarditis in which the sex incidence was thirty-two males and twelve females and the age incidence from 45 to 50 years. *Streptococcus hemolyticus* was responsible for about 50 per cent of the cases and *Staphylococcus aureus* for 25 per cent. The duration was from three days to three weeks. The left side of the heart was more often involved and ordinarily there was a preexisting valve lesion (but so far allergy highly improbable). Treatment should be entirely symptomatic (digitalis, salicylates), and apparent recovery of some cases is rather doubtful, although in the case of meningococcus it is possible.

Attenuation of Measles—Stewart points out that measles is so universally accepted as an inevitable visitation and is commonly so mild that parents are inclined to disregard its possible serious consequences. As 90 per cent of the deaths occur under the age of 5, many lives could be saved if the illness could merely be postponed. Yet under certain conditions measles can also be a menace to adults, as illustrated by the epidemics in training camps during the war. Under conditions of private practice, it is worth while to protect the brothers and sisters of a child with measles by intramuscular injections of blood from some older member of the family who has had measles. This is especially true of the younger children. Unless a child is already seriously ill it is wisest to attempt to produce an attenuated form of the disease, which presumably gives lasting immunity. Whole blood, 20 cc., can easily be injected without delay or complicated equipment. The history that a child has had measles should not be unreservedly relied on.

New York State Journal of Medicine, New York

32 1221 1282 (Nov. 1) 1932

- Diseases of Common Interest to Dentist and Otolaryngologist R. T. Atkins, New York—p. 1221
Diseases of Common Interest to Dentist and Ophthalmologist W. F. C. Stumbhager, New York—p. 1223
Some Oral Surgical Problems of Interest to Rhinologists G. M. Dorrance, New York—p. 1226
Relationship Between Dentistry and Rhinolaryngology L. R. Calin, New York—p. 1229
Dental Caries as Etiologic Factor in Toxemias of Pregnancy G. W. Kosmak, New York—p. 1232
Contribution of Pediatrics to Dental Health R. S. Haynes, New York—p. 1234
Relation of Diseases of Mouth to Pediatrics L. M. S. Miner, Boston—p. 1237
Relation of Diseases of Mouth and Teeth to Pediatrics and Internal Medicine W. D. Tracy, New York—p. 1239
Bacteriology of Dental Infections and Its Relation to Systemic Disease R. L. Cecil, New York—p. 1242
Oral Diagnosis and Disease in Other Parts of Body: What Has Oral Diagnosis to Offer? F. H. Hutton, Chicago—p. 1245
Modern Health Triangle—Physician, Dentist, Patient A. Walker, New York—p. 1249

Surgery, Gynecology and Obstetrics, Chicago

55 553 680 (Nov.) 1932

- Physiologic Responses of Fetal Ovarian and Endometrial Tissue E. Allen and F. O. Priest, Chicago—p. 553
Viability of Strangulated Intestinal Loops: Experimental Study L. Jacques, W. A. Droegemueller and J. R. Buchbinder, Chicago—p. 559
*Liver Kidney Syndrome: Clinical Pathologic and Experimental Studies F. C. Helwig and C. B. Schutz, Kansas City, Mo.—p. 570
Surgical Anatomy of So Called Presacral Nerve L. Elaut, Ghent, Belgium—p. 581
*Tumors of Appendix W. B. Norment, Greensboro, N. C.—p. 590
*Study of Effects of Roentgen Rays on Estrual Cycle and Ovaries of White Rat Della G. Drips and Frances A. Ford, Rochester, Minn.—p. 596
Appraisal of Surgical Treatment of Pulmonary Tuberculosis H. H. Trout, Roanoke, Va.—p. 607
Technic of Lobectomy in One Stage H. Brunn, San Francisco—p. 616
*Operative Treatment of Carcinoma of Rectosigmoid with Methods for Elimination of Colostomy W. W. Babcock, Philadelphia—p. 627
Diagnosis and Treatment of Malignant Tonsil Conditions C. F. Burnham, Baltimore—p. 633
Unruptured Interstitial Pregnancy A. Mathieu and W. W. Wilson, Portland, Ore.—p. 640
Ovarian Pregnancy L. E. Likes, Lamar, Colo.—p. 643
Life History of Lithopedion F. Emmert, St. Louis—p. 646
Successful Resection of Ampulla of Vater, Including Portion of Duodenum with Choledochoduodenostomy for Carcinoma of Ampulla of Vater W. Walters, Rochester, Minn.—p. 648
Rupture of Pancreas C. S. Venable, San Antonio, Texas—p. 652
*Surgical Correction of Uterine Displacements: One Hundred Consecutive Cases Operated on by Modified Gilliam Method A. Wollner, New York—p. 659
Incidence and Prevention of Perivesical Suppuration Following Suprapubic Cystotomy L. T. Mann, New York—p. 663

Liver Kidney Syndrome—Helwig and Schutz describe a syndrome that occurs in adult life and which they believe has not been reported before. In their cases, prior to the appearance of the clinical syndrome, the blood and urinary observations were normal. With its appearance, the abdomen became distended, the pulse increased from 101 to 120, and the temperature rose from 101 to 103 F. The latter observations were soon followed by a progressive oliguria and the appearance of albumin, casts and, often, blood in the urine. Following these changes, the patient usually lapsed into a muttering delirium which rapidly progressed into coma, and the nitrogenous elements of the blood increased while the urinary nitrogen

decreased. At about this time, nausea and vomiting sometimes became prominent symptoms. The latter changes were most marked in the postoperative cases from the fifth to the eighth day when, with the removal of the stitches, a decided delay or even absence of wound healing was observed. Practically always some mucous surface bleeding was noted and in many instances it was so striking that the vomitus and stools consisted almost entirely of blood. The clinical picture then progressed, as a rule, to that of a profound uremia, low grade, generalized edema developed and almost total anuria followed. The retention of nitrogenous products in the blood became more marked and the patients died in a state clinically resembling uremia. At the necropsy examination, generalized edema was almost always present. In all cases the liver showed obvious gross and microscopic damage. The principal gross observations in the kidneys were an increase in size, with obvious parenchymatous degeneration and a notable disappearance of the normal anatomic markings. Submucous hemorrhages were present in the gastro-intestinal tract in almost all cases and free blood was found in the intestinal contents in these instances. Interstitial pulmonary hemorrhages were seen in the majority of cases and other evidences of bleeding, such as petechiae of the skin, hemorrhages from the gums, hemothorax, hemoperitoneum and diffuse submucous hemorrhages in the renal pelvis, were found. All the gallbladders that were removed at operation showed evidence of long standing inflammation and the liver tissue adjacent to these gallbladders presented, in all instances, the most marked degree of hepatitis. The authors present six cases illustrating the clinical and pathologic hepatorenal syndrome. Their animal experiments tend to substantiate this pathologic relationship. They advance the hypothesis that damaged liver tissue elaborates some potent toxin which acts more or less specifically on the kidneys.

Tumors of Appendix—Norment found 67 cases of carcinoma in a study of 45,000 appendices, the average age of the patients was 38 years, and 67 per cent of the cases occurred in females. One venous hemangioma of the appendix was found. The presence of pseudomucin in cystic appendices, rather than mucin, was demonstrated by mucicarmine and safranin stains and chemically by Hammarsten's reduction method. The author emphasizes the absence of definite symptoms or laboratory evidence of tumors of the appendix. In his series he found that the chief complaint of twenty-eight patients was pain in the right lower abdominal quadrant. In the remaining cases the pain was in reference to associated pathologic conditions. The chief complaints of patients with cystic appendices were pain in the right lower abdominal quadrant in thirteen cases, pain in the epigastrium in seventeen and pain over the gallbladder in five. A history of carcinoma in the family was found in nine cases, and of carcinoma of the appendix in one case. Among patients with cystic appendices, carcinoma had occurred in the families of four and tuberculosis in one.

Effect of Roentgen Rays on Ovaries—Drips and Ford had difficulty in securing uniform destruction of functioning ovarian structures with any one exposure to roentgen rays, owing partly to individual variations in sensitivity of the follicles in different animals and partly to technical difficulties of securing uniform radiation limited to the ovarian field. A certain proportion of small follicles and primary oocytes apparently is uninjured even by the most intensive radiation used (just within lethal limits) and cyclic activity of the uterus continues during the time of their development although the animals are usually not fertile except for a brief period immediately after irradiation. The results of irradiation in their experiments confirm the fact that with complete atrophy of all functioning structures no cyclic activity occurs. This is apparently not in accordance with the observations of Parkes and of von Schubert, both of whom have reported a continuation of the estrual cycle after all the follicular structures in the ovaries of mice had been destroyed by irradiation. A peculiar hyperplastic structure has been discovered in the ovaries of rats killed late after exposure to roentgen rays, and in these rats a late return of the estrual cycle apparently occurs.

Treatment of Carcinoma of Rectosigmoid—Without in the least comprising the radical features of the operation Babcock modified the conventional abdominoperineal operation

in four ways 1 The colostomy is eliminated, thus saving time and reducing the danger of peritoneal contamination. An immediate peritoneal anus is produced without clamping, division or suture of the intestine within the abdominal cavity. To avoid infection, the intestine is not opened or removed until all wounds are closed and the perineal dressings are in place. At the close of the operation, a rectal tube is tied in. Thus the dangers of an obstruction colostomy are avoided and, as a rule, there is little secondary postoperative abdominal distention, the early passage of gas being facilitated. 2 No pelvic diaphragm is formed. By this omission time is saved, complications are avoided, and the postoperative disability from the slow obliteration of the large pelvic cavity is reduced. The open and drained pelvic cavity, although denuded, rarely causes intestinal obstruction. It is the author's impression that patients make better postoperative progress without the peritoneal diaphragm. Therefore he does not hesitate to do a radical resection of the peritoneum with no attempt at peritonealization. 3 A safe "pull through" method is used. The diseased intestine is brought through the pelvic floor, but traction is made only through the healthy intestine. A band of soft gauze about 2 inches wide is tied about the sigmoid well above the carcinoma. The ends of this gauze are packed against the pelvic floor, where they may easily be located and withdrawn through a perineal incision after the abdomen has been closed. The gauze tie also indicates the site for the perineal anus. 4 A perineal colostomy or anus is immediately formed. The discredit that has attached to the sacral or perineal anus has been due, he believes, to the technic and the poor viability of the intestine used. In many of the older operations, the end brought to the perineum sloughed for some distance into the pelvic cavity and left a cicatricial opening that was the source of much later trouble. When the blood supply to the segment of sigmoid brought through the perineum is preserved, necrosis does not occur and an opening of ample size with little tendency toward a secondary stricture is readily formed.

Surgical Correction of Uterine Displacements—Wollner's modification of the Gilliam operation is as follows. The abdomen is opened by a small midline incision extending downward to a point directly above the pubis. The fascia and peritoneum are incised in the linea alba. The patient is placed in the Trendelenburg position and the intestine pushed upward. The uterus is brought forward into the correct position and both round ligaments are grasped with clamps. A small opening is made in the fascia on each side and a clamp is pushed through the muscular layer and peritoneum. The round ligament is brought through the newly formed canal and is fixed to the outer surface of the fascia, two silkworm-gut sutures are used on each side. The round ligament is not shortened, only a small loop being fixed above the fascia. The author briefly reports 100 cases in which he used this operation. He concludes that it should not be performed as a routine measure but modified according to the indications in each individual case. He recommends the use of silkworm-gut ligatures to obtain permanent fixation. The relation of sterility and habitual abortion to retrodisplacement of the uterus is problematic. The existence of either of these conditions should not be considered as an indication for ventral suspension. The surgical correction of retrodisplacement is an elective procedure. Since operation does not result in the alleviation of all symptoms in every case, the patient should be informed to that effect before the operation.

Tennessee State Medical Assn Journal, Nashville

25 475 520 (Dec.) 1932

- Increasing Usefulness of Balanced Anesthesia J S Lundy Rochester Minn.—p 496
Surgery of Sympathetic Nervous System in Upper and Lower Extremities W A Bryan Nashville—p 499

Virginia Medical Monthly, Richmond

50 509 572 (Dec.) 1932

- Historical Sketch of Medical Society of Virginia I C Harrison Danville—p 509
Role of Allergic Disease in Otolaryngology G G Hanks Newport News—p 514
High Carbhydrate Diet in Diabetes Mellitus H M Thomas Jr and T F Howard Baltimore—p 516
The New Bed of Kugel L M Hine Abingdon—p 520
Discussion of Tuberculous Tuberculosis K Nelson Williamsport—p 521

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Children's Diseases, London

29 253 327 (Oct Dec.) 1932

- Experimental Studies on Filtrable Microbe of Scarlet Fever and Actinobacillus in Relation to Hemolytic Streptococci T Toyoda and Y Futagi—p 253
*Association of Pulmonary Changes with Rheumatic Pericarditis G T Cook—p 264
A Pedigree of Hemophilia W J Rutherford—p 267
Some Pediatric Eponyms IV Sydenham's Chorea. W R Bett.—p 283
Recurring Serum Rash Case. E W Goodall—p 288

Rheumatic Pericarditis—Cook reports the great frequency with which pulmonary signs are found in association with acute rheumatic pericarditis. The pulmonary signs occur much more frequently on the left side than on the right. The pulmonary condition may occur quite apart from a pleural or pericardial effusion. Both the severity of the signs and symptoms and their duration show considerable variation. The histologic appearance of the lungs is one of collapse and passive congestion rather than that of a specific inflammatory condition. The view is put forward that the pulmonary condition may be regarded as an active massive collapse of a portion of the lung due to reflex disturbance of the vagus and sympathetic innervation of the lung from inflammation of the pericardium.

Glasgow Medical Journal

37 361-419 (Dec.) 1932

- Serum Treatment of Scarlatina and Erysipelas H Baxter—p 361
Cancer of Large Intestine. J Taylor—p 376
Influence of Experimental Radiology on Treatment of Cancer P R Peacock—p 383

Guy's Hospital Reports, London

82 257 508 (Oct.) 1932

- A Neurologic Conundrum. J S Richards—p 262
Cerebellar Abscess of Otitic Origin Case. N H Pike.—p 266
Recurrent Subacute Necrosis of Pancreas H J Starling—p 269
Nervous Reactions in the New Zealand Earthquake. F G Gibson—p 277
The Small White Kidney. W M Robson—p 281
Prognosis D G Greenfield—p 284
*Epithelioidosis H C Cameron—p 290
Some Notes on Scientific System of Medicine in India. H Stott.—p 297
Treatment of Prostatic Obstruction. A. S. Roe—p 301
*Urea Tests of Kidney Function Urea Concentration Range of Urea Concentration Urea Output Blood Urea Clearance E P Poulton and J H Ryffel.—p 303
Factors in Control of Growth T B Heaton—p 320
Colon Bacillus Infections I. Clinical Address on Importance of Examining Urine Bacteriologically W Hale White.—p 329
*Id II Natural History, Prognosis and Treatment of Infections with Bacillus Coli Communis J A. Ryle—p 339
Id. III Coliform Bacilli and Their Pathogenicity F A Knott—p 350
Id. IV Clinical Aspect of Bacillus Coli Infection of Urinary Tract A R Thompson—p 356
Id. V Bacillus Coli Infections of Urinary Tract Complicating Pregnancy and Puerperium G F Gibberd.—p 380
Id. VI Bacillus Coli Infection in Children. H C Cameron—p 390
Id. VII Bacillus Coli Cholecystitis. A F Hurst—p 396
Acute Necrosis of Pancreas Occurring Within Eight Hours of Ingestion of Cresol with Note on Pathogenesis of Necrosis of Pancreas C K Simpson—p 410
Diagnosis of Chronic Pancreatitis History of Fatal Case. N S Plummer—p 417
*Thrombophlebitis Migrans Report of Two Cases S J Hartfall and G Armistage.—p 424
Latent Carcinoma Causing Multiple Migratory Venous Thromboses Case. R E Smith—p 437
*Acute Hemolytic Anemia of Lederer R J L. O'Donoghue and L. J. Wits—p 440
Unexplained Anemia and Pyrexia in Boyhood Three Cases. R J L. O'Donoghue and L. J. Wits—p 457
Hereditary Hemorrhagic Diathesis L. J. Wits—p 465
Acute Lymphatic Leukemia Case H Barber and F A. Knott—p 475
Ayer's Disease II J B Atkins—p 480
A Remarkable Case of Diaphragmatic Hernia. J J Conybeare K Donaldson and C K Simpson—p 490
Fracture of Five Lumbar Transverse Processes Case. B C M Palmer—p 502

Epithelioidosis—Cameron states that the existence of benign infiltration remains to be proved. It can be demonstrated only by the accident of an opportunity being afforded to perform a necropsy during the time when the extensive consolidation is present. The finding of caseous consolidation in a

case thought to be one of benign infiltration, or the finding of tubercle bacilli in puncture of the lung, proves only the difficulty of diagnosis. Even if one accepts the view that the prognosis in true tuberculous consolidation of the lung is less grave than has been assumed in the past and admits that even young children will at times tolerate such an extensive lesion well and make at least a partial recovery, surviving for many years, nevertheless the almost invariable recovery in typical cases, the absence of any constitutional symptoms, the regular outline and localization of the shadow, its appearance in some cases after tuberculin injection, and its occasional rapid disappearance in others make it difficult to believe that this consolidation is due to replacement and destruction of the alveolar tissue of the lung by a caseous process. The author reports a case of the rapid disappearance of a large and persistent shadow.

Urea Tests of Kidney Function—Poulton and Ryffel draw attention to the fact that the urea concentration test is unreliable and should never be used. The urea output test is a good rough test of kidney function, 15 Gm of urea should be given in about half a pint of water in the morning without breakfast and the maximum output calculated during the following three hours. The authors give the minimum normal figures. It is safer to make sure previously that the blood urea is within normal limits, and in these circumstances the accuracy of the test depends on the blood urea rising to about the same height, this is usually, but not invariably, the case. For accurate work the standard or maximum blood urea clearance test should be used, the calculation of standard or maximum clearance must be made according as the hourly volume falls below or above 2 cc a minute, the maximum clearance test, though more elaborate, is probably the more accurate of the two. There is a tendency for the maximum blood urea clearance to fall off in successive hours. In nephrosis the excretory function of the kidney for urea is usually depressed, in some cases of hyperpiesia the maximum clearance is normal, which suggests that the origin of hyperpiesia may be independent of renal disease.

Bacillus Coli Infections—Ryle believes that the colon bacillus may enter the circulation in certain constitutional types and as a result of certain well recognized disposing causes. A transient bacillema results and is followed by pyelitis and cystitis, or by cholecystitis during the excretion of organisms by way of the urinary and biliary tracts. Orchitis and prostatitis are rarer sequels. Late residual infection of the renal pelvis and bladder or of the gallbladder and ducts is common. Adequate treatment with full alkalization gives satisfactory results in the early stages of the urinary infections. The treatment of chronic bacilluria is unsatisfactory, but it may be improved by the new method of giving ketogenic diets. Morning salts and disinfection with methenamine are effective in the early and milder infections of the biliary tract. In a minority of both the renal and the biliary cases medical treatment is rendered unavailing by an added obstructive or mechanical factor, the presence of which can often be appreciated by a careful attention to historical detail and symptoms. Surgical treatment is appropriate in these cases. A wider appreciation of the importance of a healthy intestine and the avoidance of the purgative habit would probably do more to diminish the incidence of these prevalent infections than any other single measure.

Thrombophlebitis Migrans—Hartfall and Armitage report in detail two cases of thrombophlebitis migrans, one with typical lesions in the superficial veins of all four limbs and visceral lesions affecting the pulmonary, the coronary and, probably, the mesenteric vessels, the other of a more local migratory type without visceral lesions, being limited to the superficial and deep veins of the legs and their tributaries. In both there were active sources of focal sepsis, which were considered to be of importance etiologically and which were treated. Although clinically there was nothing to suggest any relationship to thrombo-angitis obliterans, examination of a vein obtained by biopsy in the first case showed certain histologic resemblances to changes described in the veins in that condition. The local change in the wall of the vein appears to be primarily a chronic, and presumably recurring, endophlebitis having a special localization in and around the valve cusps, and thrombosis occurs especially in these situations.

Anemia of Lederer—O'Donoghue and Wits present four cases of the acute hemolytic anemia of Lederer collected from the Guy's Hospital records, three of which have already been published in Guy's Reports by Barford and Shackle, and one of which is new. An additional thirty-two cases have been collected from the literature and a general picture of the disease has been drawn from all these cases. The disease is characterized by pyrexia, anemia of the hemolytic type with reticulocytosis and hyperbilirubinemia, and a relatively brief duration, megalocytosis is not present. Hemoglobinuria is present in the more acute cases. Leukocytosis is usual, and often the blood picture simulates acute leukemia. The untreated disease has a high mortality, but treatment by transfusion is usually curative. The acute hemolytic anemia of Lederer appears to be a specific illness due to infection, but the nature of the infection is unknown.

Lancet, London

2 1199 1258 (Dec 3) 1932

- Autonomic Nervous System W R Hess—p 1199
 *Addisonian Anemia Following Gastrectomy and Gastrojejunostomy R A Rowlands and S L Simpson—p 1202
 *Duodenal Ulceration in Infants Account of Two Cases C F Brockington and R Lightwood—p 1209
 *Autogenous Urinary Proteose in Rheumatoid Arthritis G R P Aldred Brown and J M H Munro—p 1211

Addisonian Anemia Following Gastrectomy—Rowlands and Simpson give an account of fifteen cases, from the literature, of addisonian anemia following gastrectomy or gastrojejunostomy and tabulate their special features. To these are added two cases of addisonian anemia showing subacute combined degeneration following partial gastrectomy for simple ulcer and carcinoma, respectively. The authors discuss evidence of the association between the operation and the subsequent anemia. They conclude that the sum total of evidence suggests that the occurrence of primary anemia after gastric operations is not a mere coincidence.

Duodenal Ulceration in Infants—Brockington and Lightwood give the case reports of two infants, aged 10 and 2 weeks, respectively, who died of duodenal ulceration. The clinical picture resembled that of other cases (about 200) recorded in the literature, namely, failure to thrive, and vomiting and pain after food. Melena or hematemesis seem to occur in about half the cases, and diarrhea also in about half. The infants are always wasted and they are rarely above 5 months of age. The diagnosis is one of great difficulty during life, 160 or more of the 200 recorded cases have been recognized in the postmortem room. There is reason to suppose that the diagnosis should be made more frequently, and it is suggested that it should be considered in all infants below the age of 5 months who are declining in a state of atrophy. The prognosis is poor, death usually results from inanition, occasionally by perforation (eleven recorded instances) or by massive hemorrhage. The pathology of the condition is that of a single or multiple ulceration, always lying on the posterior wall of the duodenum between the pylorus and the ampulla of Vater. The pathogenesis is in doubt, the authors consider various hypotheses.

Urinary Proteose in Rheumatoid Arthritis—Aldred Brown and Munro selected fifty cases of true active rheumatoid arthritis and prepared autogenous urinary proteose vaccines. Adopting the usual standard for positive skin reactions, they found that all the patients treated were consistently negative to intradermal, scratch and patch reactions (with one exception in the latter group). Some points in the preparation of the proteose are considered, and the question is discussed whether the substance isolated is of a proteose nature. Inquiry was made into the patients' previous and family history with regard to allergy. The following facts were elicited: (1) previous history of allergy, 4 per cent, (2) family history of allergy, 2 per cent, (a) previous history of rheumatic fever, 8 per cent, (b) family history of "rheumatism" (all forms), 26 per cent. Attempts were made by treating patients over long periods with various doses and at various time intervals with the proteose to produce amelioration, but in only one instance was any apparent success obtained. From this the authors draw two conclusions: 1. Autogenous urinary proteose does not produce skin reactions in rheumatoid arthritis similar

to those produced by antigens in cases of allergy, further, its toxicity in rheumatoid arthritis has been exaggerated. 2 As a therapeutic agent in the treatment of rheumatoid arthritis, urinary protease appears to be useless

Medical Journal of Australia, Sydney

2 677 706 (Dec. 3) 1932

- Principles Governing Prognosis in Heart Disease. L. E. Hurley—p 677
 *Notes on Use of Paraldehyde as Basal Anesthetic. J. L. Thompson and L. J. T. Hartnett.—p 682
 Note on Macroscopic Anatomy of Nerves of Bladder. A. E. Coates—p 683
 Congenital Intestinal Occlusion Report on Five Cases. G. K. Smith—p 685
 *Deliberate Opening of Bones as Treatment for Rheumatoid Arthritis. J. F. Mackenzie—p 690

Paraldehyde as Basal Anesthetic—Thompson and Hartnett state that the advantages of paraldehyde over other basal anesthetics which have come under their notice are as follows 1 The drug is easily handled and its mixture with physiologic solution of sodium chloride calls for nothing more than ordinary care. 2 The administration can be safely entrusted to a nurse and does not make any undue call on the time of the anesthetist 3 The certainty of its action has been one of the features in their series of cases 4 The dose necessary to produce the desired effect falls far below the minimum recorded fatal dose 5 While it is necessary to give ether by the open method to bring about surgical anesthesia, the amount required for and the time occupied in induction are greatly lessened 6 A small amount of ether is required to maintain the necessary depth of anesthesia, and it is easy to bring about full muscular relaxation when this is required. 7 Diminution of shock was manifest as compared with ordinary methods of anesthetization 8 The postoperative discomfort was lessened so much that there was no nausea, vomiting or pain in the majority of cases 9 There was no recollection of any of the preparations preliminary to operation 10 Most important in a large general hospital is the trifling cost of inducing and maintaining unconsciousness

Opening of Bones in Treatment of Rheumatoid Arthritis—Mackenzie states that the making of openings in some of the large bones has a curative effect on the condition known as rheumatoid arthritis. In the nineteen operations done, rarefaction of bone has been noted, accompanied by undoubted evidence of decalcification, with a marked fatty degeneration of the bone marrow, which flows like thin motor oil from the openings made in the bone. The earlier the case, the less thin the oil is found to be. The bones chosen by the author for opening are the femur and the tibia. Both legs are operated on, the lower end of the femur on the anterolateral aspect being the most convenient site and the upper end of the tibia on the anteromedian aspect being selected. Three-fourths inch trephine openings are made and sometimes enlarged. A preliminary report of this method of treatment was published by the author in the *Medical Journal of Australia* April 11, 1931. Manifestations of the curative effect are 1 Relief of pain 2 Improvement in the well being of the patient, manifested by a most striking improvement in the red cell count. An increase of 100,000 per cubic millimeter in a fortnight is common and usual, an increase up to 700,000 in that time has been noted, in one case an increase of 1,000,000 in one month was found 3 Improved functioning of the limbs, probably due to the relief from pain which previously accompanied any movement

Japanese Journal of Experimental Medicine, Tokyo

10: 373 520 (Oct.) 1932

- Experimental Research on Secretion of Gastric Glands Particularly on the Effect of Fundus. I. Sugishima—p 373
 Influence of Cell Constituents of Erythrocytes and Various Organs on Recovery from Experimental Anemia III. Experiment of Oral Administration. A. Oka—p 395
 Id. IV. Study on Resistance of Erythrocytes. A. Oka—p 429
 Id. V. Histologic Study of Hematopoietic Organs. A. Oka—p 447
 Change in Coagulability of Blood Due to Injection of Electrocollargol. Y. Takeda—p 461
 Physiologic Influence of Athletic Games on Chamions. S. Kojima, M. Shiratori, T. Hirayama, F. Kobayashi, M. Oana, A. Oka, T. Mikami and K. Miyaji—p 499
 Anticancer Activity of Long Distance Race Chamions. W. Nakagome, T. Hirayama, A. Oka, M. Utsuki and M. Kimura—p 509

Annales de Dermatologie et de Syphiligraphie, Paris

3 1073 1175 (Dec.) 1932

- *Erythema Multiforme Infectious Disease or Intolerance Reaction. A. Tzanck and M. Cord—p 1073

Erythema Multiforme—Tzanck and Cord think that two essentially different diseases are mistakenly grouped together under that name: one an infectious disease of undetermined etiology, the other a reaction of intolerance to a large variety of agents. The onset of the infectious form is marked by the appearance of slight fever, malaise, lassitude and rheumatoid pains from four to seven days before the eruption, these general symptoms recede gradually after the appearance of the eruption. There is usually a slight leukocytosis but no eosinophilia. The evolution of the erythema lasts about two weeks. This form is linked to a severe, pyretic form by many intermediate forms. In the erythema multiforme which is an intolerance reaction, the character, localization and manner of appearance of the eruption are identical to that of the infectious form, but there are several characteristics which differentiate it from the latter. The most constant and easily determined symptom which differentiates the erythema of intolerance from the infectious erythema is a marked pruritus. Other distinguishing characteristics are: absence of an initial infectious phase, eosinophilia without leukocytosis, anamnesis of asthma, hay fever, eczema or urticaria, demonstrable sensitivity to an antigen, and a multiplicity of causative agents: chemical (albuminoid or crystalloid) or physical (light or heat). The differentiation between infectious erythema multiforme and the erythema multiforme of intolerance is important from a therapeutic as well as a theoretical point of view, as the former should receive antinfectious treatment and the latter should be treated by desensitization.

Archives de Médecine des Enfants, Paris

36 1 72 (Jan.) 1933

- *Rickets in Presence of Calcium Fixing Agents. G. Mouriquand, A. Leulier, P. Sedallian and Mlle L. Weill—p 5
 Late Prognosis of Erythema Nodosum. E. Lesne, Y. Boiquen and P. Guillaud—p 21
 Pathogenesis of Mongolism. K. Rachid—p 31
 Three Cases of Lipoid Nephrosis in Children. P. Gautier and Mlle. Schenau—p 34
 Lipoid Nephrosis in Child Aged 11 Months. Marie Louise Saldun—p 41

Rickets in Presence of Calcium-Fixing Agents—Mouriquand and his associates studied the effect of various calcium-fixing agents on a group of thirty-four children with rickets, who were hospitalized under good hygienic conditions but without sunlight. Most of the children were hypotrophic, a few were in good condition. The authors found that the direct action of ultraviolet rays has by far the strongest calcium-fixing powers. Irradiated sterols are powerful calcium fixing agents but are inferior to direct ultraviolet irradiation, the latter is sometimes efficacious in cases resistant to irradiated sterols. Epinephrine was found to have no antirachitic power, and the calcium-fixing action of cod liver oil was found to be very feeble. However, there are cases of rickets that are resistant to ultraviolet irradiation, the authors call them "uvioresistant." The uvioresistant cases are found chiefly among the hypotrophic forms and especially among those which, roentgenologically, exhibit a streaked condition of the bones, an osteoporosis of the diaphyses, periostitis and fractures. The authors think that in uvioresistant cases of rickets one may try antisiphilitic treatment, as the other factors producing that condition are still unknown.

Gazette Hebdomadaire des Sciences Med. de Bordeaux

54 17 32 (Jan. 8) 1933

- *Search for Tubercle Bacilli in Gastric Contents. Importance in Diagnosis of Tuberculosis in Adults. F. Pichaud and R. Bacquet—p 17
 Verne's Resorcinol Reaction in Cerebrospinal Fluid in Tuberculous Meningitis. M. J. Caussimon—p 20

Search for Tubercle Bacilli in Gastric Contents—Pichaud and Bacquet state that the examination of gastric contents for tubercle bacilli is a valuable aid for the diagnosis of incipient or latent forms of tuberculosis without expectoration in the adult as well as in the child. While pulmonary tuberculosis in its earliest stage is usually a lesion which does not communicate with the bronchial passage, the tubercle bacilli soon pass to the exterior but are usually swallowed because there is no expulsive cough. The authors' opinion is

based on their experience at a clinic for patients suspected of incipient or latent tuberculosis, or having pseudotuberculous respiratory disturbances, pithiatism or other diseases in which tuberculosis is to be ruled out. Gastric lavage is practiced systematically at the clinic. It is performed in the morning on the fasting patient by means of an Einhorn tube, through which from 40 to 80 cc of water is introduced and then aspirated. The fluid is centrifugated and the sediment of each tube is suspended in 30 cc of water, treated with ten drops of caustic soda and heated for ten minutes. It is then recentrifugated for forty-five minutes and the new sediment is poured on a slide without spreading and stained by the Ziehl-Neelsen method. The scarcity of the bacilli demands careful and complete examination of the slide made from each centrifuge tube. Thus examination is considered a sufficient guarantee for the presence or absence of acid-fast bacilli. In rare cases of persistent doubt in the presence of a negative result, a guinea-pig may be inoculated.

Policlínico, Rome

10 168 (Jan 1) 1933 Medical Section

Problems of Anaphylaxis in Human Pathology C Frugoni—p 1

Investigation of Types of Diplococcus in Lobar Pneumonia M Levi—p 38

*Familial Adiposogenital Dystrophy and Cranial Defects T Lucherini—p 53

Familial Adiposogenital Dystrophy and Cranial Defects—Lucherini made a study of a man, aged 21, his brother and his sister, who all presented familial adiposogenital dystrophy of Froehlich's type, accompanied by cranial defects of the same type. Roentgen examination revealed in all some evidence of acromegaly and thickening of the bony shell of the frontal region, with areas of greater transparency, pronounced depressions for the diploic canals and a marked depression of the occipital fossa. The markings on the bones caused by the cerebral convolutions were especially apparent on the frontal bone. There were small erosions of the inner table of the cranium. In the lateral aspects there were exaggerations of the lacunar diploic system. The sigmoid or the transverse sinus was prominent behind the solid part of the petrous portion of the temporal bone. The author maintains that the dystrophy did not follow a lesion of the pituitary body but was the result of some obscure primary or secondary lesion of hypothalamic nerve centers. This coincides with the modern concept of a diencephalohypophyseal genesis of the disease. All three patients had a positive Wassermann reaction, the infection presumably coming from the paternal side. Thus the author deems important in the causation of the neurohypophyseal and cranial syndromes. The osseous alterations of the cranium together with the general clinical symptomatology made possible a diagnosis of endocranial hypertension and suggested the idea of an osteodystrophy of probable endocrinopathic origin. The author finds these cases interesting from the standpoint of roentgenology and also because of the light they throw on the still unclarified neurohypophyseal clinical syndrome.

Archiv für klinische Chirurgie, Berlin

172 597 794 (Jan 2) 1933 Partial Index

*Exciting Cause of Appendicitis and of Peritonitis of Appendicular Origin M Gundel—p 597

*Question of Inflammatory or Congenital Origin of Adhesions of Large Intestine (Jackson's Membrane) Fenkner—p 624

Osteodystrophia Fibrosa of Jaw and Epulis F J Lang—p 673

Rare Form of Split Patella A Pytel—p 718

*Determination of Pancreatic Ferment Role of Diastase and Lipase in Diseases of Biliary Tract and in Surgery of Pancreas A Bauer—p 743

Subcutaneous Rupture of Liver Ecarus—p 755

Demonstration of Suprarenal Lipase in Hypernephroid Tumors G Jorns—p 781

Exciting Cause of Appendicitis and of Postappendicular Peritonitis—Gundel of the Hygienic Institute of the University of Heidelberg studied 167 cases of acute appendicitis, appendicular abscess and peritonitis of appendicular origin, with the view of determining the exciting cause of acute appendicitis. Extensive bacteriologic, blood culture and histologic studies were made in each case. A throat smear and a bacteriologic study of the blood and feces were made in most cases. With a single exception, the blood cultures proved negative, suggesting that acute appendicitis is not a blood-borne infection. No constant relationship was observed between the throat and the

bacterial flora of the appendix. It was demonstrated that, besides the normal inhabitants of the oval cavity, there existed a variety of micro-organisms capable of passing into the intestinal canal and becoming part of the normal intestinal flora. In seven cases the bacterial flora of the throat and the appendix was identical. This was true of hemolytic streptococci and of pneumococci. Further serologic type differentiation of the pneumococcus demonstrated in each case an homologous type in the oral cavity and in the appendix, establishing for the first time the possibility of passage of microbes alien to the intestinal tract from the mouth to the appendix. The same organisms were recovered from the feces. The author emphasizes the importance of histologic studies of appendixes as originally introduced by Aschoff. These, supported by careful bacteriologic studies, enabled him to conclude that the enterococci, with the related nonhemolytic streptococci, are the causative factors of acute appendicitis. In a small percentage, other organisms, such as the hemolytic streptococcus, the bacillus of Friedländer and the influenza bacillus, were responsible. The specificity of enterococci is suggested by their localization, their regular occurrence in the deeper tissues of the appendix and the presence of phagocytosis of the finer gram-positive micro-organisms of the enterococcus and the related groups. The larger gram-positive organisms characteristic of fecal flora were not observed in such tissues. Quite to the contrary were the conditions in the case of appendicular abscess or of appendicular peritonitis. Here the original exciting micro-organisms disappear and the bacteria of the fecal flora become predominant. The most important among these are the colon bacillus and the gas bacillus. The exact role of the latter in the free peritoneal cavity is not clearly understood. The important part in the morbid process is probably played by the colon bacillus. It appears that the initial inflammatory process prepares the way for the micro-organisms of the fecal flora. After the perforation, the original organisms of the enterostreptococcus group recede into the background and the colon bacilli come to dominate the morbid process.

Adhesions of Large Intestine—Fenkner is opposed to the conception, prevalent among surgeons and reflected in the extensive reports of Nordmann (1926) and of Finsterer (1930), that phlegmon of the large intestine is a rare and an almost always fatal condition. He believes, to the contrary, that the condition is much more common than is generally believed, that it is frequently mild, and that it passes on to healing without surgical intervention. He reports, from his own material, fourteen cases of phlegmonous inflammation involving one or the other segment of the large intestine. These cases did not include inflammations of the vermiform appendix. The significance of such inflammatory states is that they lead to formation of adhesions capable of giving rise to symptoms at a later date. Such adhesions and membranes were always believed to be of congenital origin. The author points out that while adhesions are found in about 4 per cent of the new-born, their incidence is much greater in later life. The author believes that congenital membranes or adhesions do not, as a rule, cause symptoms. Such adhesions as cause symptoms are of inflammatory origin and should be submitted to surgical treatment. These adhesions are typical for the large intestine. They resemble considerably adhesions about the pylorus and stomach the origin of which is likewise of inflammatory nature.

Determination of Pancreatic Ferment—Bauer points out the relationship between the diseases of the biliary tract and the pancreas and the desirability for a reliable functional test of damage to pancreatic tissue. In eighty cases of acute or subacute disease of the pancreas, 25 per cent were cases of primary pancreatitis, while 97.5 per cent were secondary to disease of the gallbladder and the bile ducts. In 78.8 per cent gallstones were present, while 18.7 per cent were cases of cholecystitis without stones. Wohlgemuth's urine diastase test gave a wrong indication in five out of ninety-eight negative tests. Three of these were proved at operation to be cases of chronic pancreatitis, and two proved to be cancer of the pancreas. Out of seven cases giving a positive Wohlgemuth test, five exhibited at operation pathologic lesions in the pancreas, while two cases presented stones in the common duct without, however, showing changes in the pancreas. The author, therefore, concluded that increased diastase in the urine is not necessarily pathognomonic of a disease of the pancreas. A negative test suggests the absence

of an acute process in the pancreas. In a group of 100 patients with gallbladder disease, the blood serum was investigated for pancreatic lipase after the method of Rona. In eighty-nine patients whose pancreas was demonstrated at operation to be normal, the difference in the number of drops required to split tributyrin solution with atoxyl and tributyrin solution without atoxyl was four drops after ninety minutes. A higher number than four drops was considered abnormal and indicated a difference in surface tension of the tributyrin solution brought about by the action of a pancreatic lipase which, alone of all fat splitting ferments found in the blood, is capable of splitting fat even in the presence of a poison such as atoxyl. In eleven cases of acute or chronic disease of the pancreas, as demonstrated at operation, the Rona test gave a difference of from five to sixteen drops. Both the positive and the negative tests gave a correct indication in all the cases. The author concludes that the Rona test is a more sensitive and more accurate test of early pancreatic damage, in conjunction with bile tract disease, than the Wohlgemuth test.

Deutsche medizinische Wochenschrift, Leipzig

58 2025 2050 (Dec. 23) 1932

- Relations of System Hypophysis Mesencephalon to Eye H Zondek and Gertrud Koehler—p 2025
*Anesthesia of Phrenic Nerve as Test Operation J Hein—p 2028
*Instruction in Control of Cough P Lohfeldt—p 2030
Changes of Form of Erythrocytes in Pleural Effusion F Lahendzinski—p 2031
Fracture of Fingers by Ball Playing G Muskat—p 2032
*Ileus During Puerperium S Liebmann—p 2033
*Treatment of Bed Wetting During Childhood C Nelken—p 2034
Experiences with Standardized Testicular Hormone A Wohling—p 2034
Remarks on Treatment with Acetarsone E Kaufmann—p 2035
Cutaneous Irritation Following Dyeing of Hair H Meyer—p 2035

Anesthesia of Phrenic Nerve as Test Operation.—It is pointed out by Hein that the phrenic operations, the permanent as well as the temporary exclusions, involve uncertainties, since it cannot be known before the intervention how high the diaphragm will go. In order to be able to determine this in advance he resorted to anesthetization of the phrenic nerve by means of a 0.5 per cent solution of procaine hydrochloride. He describes the technic of this intervention and shows that it is simple and harmless. Exposure of the nerve is not necessary for it can be reached with the simple anesthesia cannula. The anesthesia takes effect immediately and persists for from 30 to 120 minutes. During this time the position of the diaphragm is verified by roentgenologic examinations. The author considers the temporary paralysis of the phrenic nerve a test operation and states that he never followed it immediately by the operation but first studied its effect on the lungs and on the entire organism particularly the circulation.

Control of Cough.—According to Lohfeldt coughing not only is a periodic disorder, to which any one may be temporarily subject but also concurs with some chronic diseases in that it intensifies them or is the symptom that causes the disorder to be troublesome. Chronic bronchitis, for instance, would be bearable if it were not for the annoying cough. In many laryngeal catarrhs the patient becomes conscious of the disturbance by his continued coughing and 'clearing of the throat'. In cases of tuberculosis coughing may actually endanger the life of the patient because it prevents him from having the proper rest. Asthma is likewise exacerbated by coughing. Thus it is evident that rational and effective control of coughing is in many cases of primary importance. This can sometimes be accomplished by the use of expectorants but in some cases they are not effective and the cough has to be counteracted by control of the laryngeal function. The aim should be to limit the cough to the few hawks that are really necessary for many patients make the mistake of coughing too much. The author describes the mechanism of coughing and shows how it can be controlled. The process of coughing consists in an air tight closure of the larynx and an explosive opening. Thus coughing can be controlled by preventing closure of the larynx or by preventing an explosive opening. The first can be accomplished by letting the patient form a toneless friction sound such as a toneless S whenever irritation is only slight. If the irritation is more severe the coughing reflex can be counteracted by the stronger respiratory and opening reflex by short rapid breaths so that the larynx finds no time for closure. Coughing can also be prevented by inhibiting the

explosive opening of the larynx after closure has taken place. The air-tight closure is opposed by a strong air pressure, this is "suppression" of coughing, a mechanism that many persons develop unconsciously by suppressing a cough, for instance, in a theater. After a short suppression the irritation usually recedes, but if it still persists the closure can be broken by a few short breaths. The author also shows that, in patients with laryngeal and respiratory disorders, clearing of the throat may be even more harmful than coughing, in that it irritates the larynx without accomplishing the elimination of accumulated mucus. However, clearing of the throat can also be done in a way that accomplishes elimination of the mucus and yet does not injure the larynx. This is done best by advising the patient to exhale and inhibit exhalation by air-tight closure of the vocal cords. He must have the feeling that a slight increase in pressure is sufficient to force the air through, and this should be done by letting a little air escape first and then follow this by a stronger air stream.

Ileus During Puerperium.—Liebmann points out that ileus is comparatively rare during the puerperal period because in the course of ten years only two cases were observed among 16,151 deliveries. He describes the clinical histories of these cases and gives his theory of the pathogenesis in each case. The recognition of extragenital abdominal disorders, ileus among them, is extremely difficult during the puerperal period, because pains, spasms and sensitivity are usually thought to originate in the genital organs. Thus the correct diagnosis may be made too late. Therefore, the author advises that, whenever vomiting, constipation and meteorism occur simultaneously during any phase of the puerperium, the possibility of an ileus should be taken into consideration, otherwise the opportune time for an operative intervention may be missed.

Treatment of Bed-Wetting.—By considering nocturnal enuresis together with the other symptoms of nervous irritability, which the anamnesis generally revealed, Nelken decided to try sedative treatment. He found bromides ineffective but obtained favorable results with calcium chloride. He administered the calcium in comparative large doses. Three times each day, before meals, the children were given in fruit juice one-half teaspoonful of a mixture consisting of calcium chloride 50 Gm, acacia 5 Gm, and water to make 100 Gm. After a few days, or at least after two weeks, of this medication the nocturnal enuresis ceased. However, the success was not always final. During colds the enuresis sometimes returned temporarily and the author advises the continuance of the medication for several weeks beyond the time of the first effectiveness. Other good results of the calcium treatment were an improvement in the appetite, a deeper and more restful sleep, and particularly a disappearance of the nocturnal gnashing of teeth and of accompanying symptoms. Thus it is evident that the calcium therapy decreased the irritability. The calcium therapy was also effective in pollakiuria during the day and in dribbling of urine. Of course in cases of bed-wetting that are the result of a wrong diet or of a lack of proper training, calcium therapy is not indicated, for the treatment with calcium means the treatment of the irritable child in whom nocturnal enuresis is only a partial symptom.

Klinische Wochenschrift, Berlin

12 1-48 (Jan 7) 1933

- Blood Depots in Human Beings H Rein—p 1
Significance of Blood Depots for Pathology H Eppinger—p 5
Blood Depots of Human Beings E Wollheim—p 12
Idem R. Nissen—p 16
*Acute Pulmonary Stasis and Pulmonary Edema in Mitral Stenosis F Schellong—p 18
Prolan in Hypophysis B Zondek—p 22
Problem of Pharmacologic Identity of Two Ergot Alkaloids Ergotamine and Ergotoxin E Rothlin—p 25
*Bacillema and Bacilluria in Tuberculosis H Deist—p 26

Acute Pulmonary Edema in Mitral Stenosis.—Schellong's report indicates that mitral stenosis has a special position among the valvular defects of the heart. This unique position is the result of peculiar processes in the lesser circulation because mitral stenosis cannot be compensated within the lesser circulation. Certain interrelations between the systemic circulation, the heart and the lesser circulation give mitral stenosis a special clinical character. This is produced by acute increase in the blood supply of the already congested lung which in turn is the result of increased venous afflux to

the well functioning right heart, while the outflow from the lung is not equal to this. The mobilization of blood from the periphery seems to be especially easy in some cases of mitral stenosis, because it seems to be produced by conditions that in normal persons do not in the least affect the circulating quantity of blood. Moreover, a too strong digitalization may also increase the afflux to the lung. The careful observer will grasp the significance of symptoms that otherwise may seem unimportant, such as a short dyspnea produced by slight somatic or psychic causes, palpitation of the heart, backache and psychic manifestations, such as depression and restlessness. If afflux and discharge do not become adjusted soon, for instance during the night, following exertion or after digitalization, cardiac asthma and pulmonary edema may develop. Efficient functioning of the right heart is required for all these conditions. If this function becomes impaired, decompensation of the systemic circulation with swelling of the liver and with edema sets in. Thus decompensation of the right heart usually develops slowly in mitral stenosis as in other valvular lesions, but in acute pulmonary edema it may develop rapidly, particularly if the right ventricle previously was already at the limit of its capacity. An understanding of the pathogenesis is of the greatest significance in the treatment. In patients in whom a pulmonary edema threatens or has already developed, the author advises against the use of strophanthin because, if the right ventricle functions properly, there is no need for it and it can only be harmful, and, if an insufficiency of the right heart develops with swelling of the liver and edema, the right heart decreases the afflux of blood even without the aid of strophanthin. Attention is called to the prompt action of venesection and to the importance of the intravenous injection of vasodilatory agents in order to fill the empty blood depots. Preparations that have a vasoconstrictory effect are contraindicated. Oxygen inhalation is of great value in mitral stenosis just as in other forms of pulmonary edema. If pulmonary edema develops following medication with large doses of digitalis, medication with digitalis or even with strophanthin should be discontinued and vasodilatory agents should be employed. If digitalis action is necessary for preserving the equilibrium between the lesser and the systemic circulations, digitalis substitutes may prove helpful.

Bacillemia and Bacilluria in Tuberculosis—Deist thinks that the rarity of a positive blood culture in tuberculosis is not the result of an unsuitable culture medium but of the fact that the blood cannot be examined often enough. For this reason bacilluria has been given more attention recently because, if tubercle bacilli are found in the urine and a tuberculosis of the urinary and genital organs can be excluded, they can originate only in the blood, and thus bacilluria is an indirect proof of bacillemia. The author examined the urine of thirty-one patients on twenty-five successive days. The urine of twelve patients contained tubercle bacilli and, with one exception, their sputum likewise contained tubercle bacilli. However, the bacilluria was not constant. In most of the patients the bacilli were found in the urine only on one day, in two patients on four days and in two others on two and three days, respectively. It is also noteworthy that, with one exception, the twelve patients had undergone several surgical interventions. The demonstration of tubercle bacilli in the urine was possible in seven cases immediately after a surgical treatment, such as the making or refilling of a pneumothorax, a thoracocautic intervention or an interruption of pregnancy. The author emphasizes that, in all of the twelve patients in whom bacilluria was demonstrable, a tuberculous involvement of the urinary and genital organs could be excluded.

Medizinische Klinik, Berlin

28 1801 1818 (Dec. 23) 1932

Material Foundation of Malignancy Principle in Malignant Tumors
F. Fränkel—p. 1801

*Irritation Wheal. H. Sippy and K. Stejskal—p. 1803

Persistent Urachus in Adult. F. Smoler—p. 1806

Experiences with Communal Care for Diabetic Patients. G. Peschel—p. 1807

Pulmonary Actinomycosis. D. Ostfeld—p. 1808

Choice of Pneumothorax Needle. J. Wolf—p. 1810

Irritation Wheal—Sippy and Stejskal direct attention to an irritation therapy of pain. Reports in the literature, particularly Goldscheider's investigations on the mechanism of the pathogenesis of pain and on the efficacy of counterirritation,

induced them to search for a substance that would stimulate the temperature nerves to produce a burning sensation but would cause only slight pain when a wheal was produced with it. They found the following combination to be the most suitable: tincture of capsicum 1, phenol 0.05, urea 20, and spirit of mustard 78.95, but they state that this dosage is only approximate and that they used a solution that was prepared for them by a pharmaceutical house. The tincture of capsicum is probably the most important constituent, since it stimulates the temperature nerves. The phenol is supposed to have an antiseptic effect, and the hypertonic concentration of the solution, which is produced by urea, is to prolong the irritation. The authors observed that in normal persons this solution, if administered intracutaneously, produces a hyperalgesia of the surrounding tissues, particularly centrally, and also in the underlying muscles. The wheal, a hemorrhagic papule on the skin, disappears in about ten days. If the solution is given to counteract pain, it is administered at the site of spontaneous hyperalgesia. The authors tried treatment with the irritation wheal on about seventy patients with various disturbances, such as febrile acute articular rheumatism, subacute arthritis, pains in the knees or shoulders, renal calculi, pleurisy, esophageal disorders, angina pectoris, gastric crisis and muscular spasms. After discussing the mechanism of the treatment, the authors conclude their report by stating that their main object was to call attention to their efforts and to encourage further work in this direction.

Monatsschrift f. Geburtshilfe u. Gynäkologie, Berlin

93 137 248 (Jan.) 1933 Partial Index

*Abnormally Long Duration of Pregnancy. M. Tausch—p. 137

*Experiences with Blood Transfusion in Puerperal Sepsis and in Secondary Anemia. G. Kochmann—p. 154

Modification of Bodily Periods by Cosmic Waves. G. Riebold—p. 163

Etiology and Malignant Degeneration of Leukoplakias of Mucous Membrane of Vaginal Portion of Cervix Uteri. G. A. Kolegajew—p. 166

*Diphtherial Vulvovaginitis in Girl, Aged 8. E. Unseld—p. 177

Abnormally Long Duration of Pregnancy—Tausch states that the normal length of gestation is usually considered to be 273 days from the date of conception or 280 days from the date of the last menstruation. However, he considers as abnormally long only those terms that exceed 302 days (273 plus 28 plus 1), because conception may have taken place late in the intermenstrual period. This could prolong gestation 28 days over the 273 days and 1 day for delivery, particularly in women whose menstrual intervals are longer than 28 days. He cites statistics showing that a prolongation of the gestation period beyond 280 days, but not in excess of 302 days, occurs in a considerable percentage of cases. A gestation period of more than 302 days is rare but, after citing ten cases from the literature in which pregnancy lasted from 334 to 376 days, the author describes a case of his own observation in which delivery was artificially induced 343 days after the last menstrual period. The woman, aged 27, was a primipara. Her anamnesis revealed nothing unusual except that her mother was reported to have carried about three weeks over the normal term in all of her thirteen pregnancies. After labor had been induced in the primipara by means of pituitary extract and by other measures, the delivery was spontaneous. The infant, a well developed girl, was alive and was considerably larger than the normal child. It was 56 cm. long and weighed 5,000 Gm. The author discusses the causes of prolonged pregnancy and points out that the problem of abnormal length of gestation, besides having biologic and obstetric significance, is also important in forensic medicine.

Blood Transfusion in Puerperal Sepsis and in Secondary Anemia—Kochmann shows that an etiologic therapy of puerperal sepsis has not been found as yet and that most of the pharmacologic and serologic treatments have accomplished little or nothing. For this reason he resorted to blood transfusion but, to guard against self delusion about its efficacy, he employed it only in severe cases. The reports in the literature differ widely in their evaluation of blood transfusion in puerperal sepsis but, since its harmlessness was proved, the author decided to try it, with the following points in view: 1. Puerperal sepsis frequently develops following severe loss of blood, and transfusion makes up for this loss at least temporarily. 2. Transfusion compensates at least partially for the deficient formation of antitoxic and antibacterial substances. 3. The circulation is usually impaired, and transfusion fills the circu-

latory system with a biologically valuable fluid 4 Transfusion stimulates the impaired defense mechanism The author employed transfusion in sixteen cases of severe puerperal infection The brief clinical histories of these patients indicate that the efficacy of the blood transfusion did not come up to expectations for only five of them recovered, and in two of these the cure cannot be ascribed to blood transfusion However, transfusion had good symptomatic effects in many cases, the pulse improved, the temperature decreased, the continuous chills were interrupted and the patients felt relieved. Although the curative effect of transfusion was not as valuable as expected in puerperal sepsis, transfusion did prove its efficacy in chronic secondary anemia of patients with myoma or metropathia and also in acute secondary anemia following severe loss of blood after delivery or after abortion

Diphtherial Vulvovaginitis—Unsel reports the clinical history of a girl, aged 8, who developed a severe vulvovaginitis, together with slight pharyngeal symptoms Bacteriologic examination corroborated the assumption that the condition was caused by diphtheria bacilli, and treatment with large doses of diphtheria serum was resorted to and proved effective The complications, such as myocardial and renal impairments, visual disturbances, and paralysis of the uvula and of certain muscles of the neck and the back, all disappeared again The source of the infection could not be definitely established, but the author assumes that the child became infected in a children's home in a spa, for the condition developed a few days after return from the spa. He considers the vulvovaginitis secondary and the pharyngeal conditions primary, although the pharyngeal symptoms were much less severe.

Zeitschrift f Geburtshilfe u. Gynakologie, Stuttgart

104:1 208 (Dec 30) 1932

- Operative Treatment of Tubal Sterility and Experimental Studies with Free Ovarian Tube Transplants W Reiprich—p 1
Construction of Artificial Vagina with Aid of Thiersch Transplants M Henkel—p 36
Results with Obstetrics in Homes O Fahlbusch—p 45
Study of Physical Types in Three Hundred Women in Puerperium. H E. Scheyer—p 93
*Practical Value of Ruge-Philipp Virulence Test. R. Waitz—p 106
*Demonstration of Schizosaccharomyces Hominis in Blood of Umbilical Cord T Benedek—p 119
Three Different Heterologous Mesodermal Tumors in One Uterus H Reinecke—p 140
Meaning of Number of Pains in Labor H Runge and R Fugner—p 158
Neuromuscular Changes in Pregnancy and Toxemia of Pregnancy R. Hansen and O Voss—p 175

Value of Ruge-Philipp Virulence Test—A review of the literature on the subject, according to Waitz, points to a preponderance of favorable opinion as to the practical value of the Ruge-Philipp virulence test. The latter consists in determining the relation of the invasive power of the vaginal micro-organisms to the bactericidal quality of the blood of the person. The author applied the test in the gynecologic clinic of Zwickau in 195 operative and 63 obstetric cases. He found that the presence of virulent organisms in the vaginal flora suggests later complications but does not establish a definite prognosis. The presence of nonvirulent organisms insures a smooth convalescence almost without an exception. The test gives a valuable indication in the preparation of a patient for a gynecologic operation. A virulent flora can be attenuated or changed to a nonvirulent one through the use of antiseptic vaginal douches. The presence of virulent organisms in a case of abortion is an indication for conservative treatment. The test gives valuable indications in the irradiation of uterine cancer. To avoid an infection it is advisable, in the presence of virulent germs, to spend some time in an attempt at disinfecting the genital tract before applying the radium. The same holds true for roentgen therapy. In the course of a severe infection of the genital tract the test offers an index to the power of resistance of the organism. The application of the test implies the cooperation of a well equipped bacteriologic laboratory. The author concludes that the virulence test offers, when used in conjunction with clinical observations, a valuable aid to prognosis, prophylaxis and treatment of gynecologic and obstetric conditions.

Schizosaccharomyces Hominis in Blood of Umbilical Cord—Benedek was able to obtain a pure culture of this vegetative parasite from the contents of a cantharides blister

in 90.5 per cent of the cases. The streak method was used in making the cultures. The microscopic preparations were stained with the May-Grünwald-Giemsa stain. The author believes that *Schizosaccharomyces* is a permanent endoparasite of the human species. Transmission of the infection from one human subject to another is accomplished in the uterus. The author was able to demonstrate the passage of parasites from the maternal to the fetal circulation by examination of the blood from the umbilical cord. The blood thus obtained was centrifuged and submitted to the cultural method of study. The author was able to cultivate the parasites in 31.66 per cent of 657 specimens of blood from the umbilical cord.

Zentralblatt für Chirurgie, Leipzig

60 1 64 (Jan 7) 1933

- Unusual Internal Injury of Knee Joint Resulting in Grating Knee. W Müller—p 2
*Danger of Infection in Operative Opening of Stomach and Jejunum. M Madlener—p 4
Continuous Use of a Catheter 'Without an End' in Injuries of Posterior Urethra M Molnár—p 7
New Plastic Operation of Breast. O Grosse—p 8
New Operation for Acromioclavicular Luxation A. Fürst—p 12
Chisel and Mallet K. Nieny—p 15

Danger of Infection in Operative Opening of Stomach—Madlener states his belief that, in the prevention of infection within the peritoneal cavity, it is more important to preserve the vitality of the peritoneum than to keep out the infection at all costs. For the last ten years he has abandoned the use of occluding clamps except in cases of gastric carcinoma, a pre-operative lavage of the stomach and the use of the sucker during the operation were relied on to limit the soiling of the peritoneum with gastric or intestinal contents. During that time he has performed 206 partial gastric resections and forty-one gastro-enterostomies. There were no fatalities in the gastro-enterostomy group, there were six fatalities in the gastric resection group, slightly less than 3 per cent. Of these, only two were the result of infection. The observations from the clinics of Anschütz and of Stich demonstrated that the gastric and duodenal contents in the cases of peptic ulcer are usually sterile or contain nonpathogenic organisms. In cases of gastric carcinoma, the flora is rich in pathogenic organisms. In the last five years the author has operated in forty cases of gastric carcinoma without the use of occluding clamps. In this group there were three deaths caused by the operation, two being due to peritonitis. Drainage was omitted in all save four cases giving special indications. The stomach was washed out before the operation with water acidulated with hydrochloric acid. In the postoperative histories of the surviving 237 cases of partial gastric resection there was not an instance of a severe infection, of an intraperitoneal abscess or of a diffuse suppuration of the abdominal wall. The author ascribes the relative freedom from infection to the omission of the occluding clamps. This permits of minimizing the amount of trauma to the peritoneum, of performing a more accurate anastomosis, and of a more direct and accurate hemostasis.

Zentralblatt für Gynäkologie, Leipzig

57 1-64 (Jan 7) 1933

- *Clinical Features of Endometriosis L. Seitz—p 1
Pathogenesis of Bleeding in Gynecology R. Schroder, R. Kessler and K. Tietze—p 11
Roentgen Demonstration of Detail of Uterine Cavity H. Guthmann and F. Stahler—p 26
*Hepatopathy of Pregnancy and Pathogenesis of Eclampsia J. Hofbauer—p 35
Genuine Menstruation in Castrated Woman Provoked by Administration of Ovarian Hormones C. Kaufmann—p 42
Single Massive Transfusion of Blood from Pregnant Subject in Pathologic Uterine Bleeding Caused by Follicular Persistence in the Ovary C. Clauberger—p 47
A Krukenberg Tumor in Pregnancy E. Puppel—p 49
Primary Localization Tuberculosis in Mesenteric Lymph Nodes W. Sigwart—p 51
Dactyloscopy and Pedoscopy of the New Born J. von Khreninger-Guggenberger—p 55
Hematoma of Liver in the New Born P. Hüsey—p 59
Case of Intra Uterine Paroxysmal Tachycardia H. Tollas—p 60

Endometriosis—Endometriosis according to Seitz, presents three main characteristics: (1) It is essentially a normal endometrium in an atypical location; (2) it exhibits a tendency to proliferation and invasion of the neighboring tissue; and (3) it responds to hormonal ovarian influence with a menstrual

reaction in the same manner as the normal endometrium. The clinical picture varies with the localization. In the sixty-five cases observed by the author, the growth was localized as follows: uterus, nineteen times, tube, eight times, ovary, twenty-three times, pouch of Douglas, four times, urinary bladder, three times, parietal and visceral peritoneum, four times. Three fairly typical clinical pictures, depending on the localization, can be differentiated: (1) endometriosis within the uterine musculature, (2) retrocervical and (3) intraperitoneal, with localization in the ovary, the tube or the uterosacral ligaments. The most noticeable symptom in the first variety is increased and prolonged menstrual flow. Dysmenorrhea is common. The uterus is uniformly enlarged and hard. Curettage does not stop the bleeding permanently, nor do the roentgen rays. Retrocervical growths can be recognized on rectovaginal palpation. It is this type that displays the greatest tendency to proliferation and invasion. The growth commonly involves the uterosacral ligaments, the posterior wall of the vagina, the vagina, the rectal wall and the rectum. Robert Meyer demonstrated the histolytic properties of these cells resembling sarcoma and suggesting that the growth is a true blastoma. While the tumor itself is not malignant, it brings about a tendency to malignant transformation in the adnexa. Intraperitoneal endometriosis begins, as a rule, in the ovary and invades the adnexa, forming a conglomerate tumor. The premenstrual histologic changes are most pronounced in this localization, probably because the growth is not compressed, as is the case with the intra-uterine tumor. This menstrual reaction leads to bleeding with formation of chocolate cysts in the ovary or the tube and to bleeding into peritoneal tissues. The resulting peritoneal irritation gives rise to severe premenstrual and menstrual pains, frequently associated with rectal and vesical tenesmus. The treatment presents many difficult problems. In women about the menopause, the author recommends roentgen irradiation, high dosage being employed, as for carcinoma. Surgical intervention is preferable in young women. The author attempted in such cases to conserve at least one ovary and the uterus. This procedure yielded 13 per cent of recurrences requiring a complete extirpation at a secondary operation.

Hepatopathy of Pregnancy and Pathogenesis of Eclampsia—Hofbauer states that the liver in the second half of pregnancy shows special histologic changes. These are: (1) stasis of the central veins, (2) disappearance of glycogen and its replacement with fat droplets, and (3) biliary stasis. As a functional corollary of these changes, he points to alimentary levulosuria, urobilinuria, tendency to acetonuria and to elimination in urine of amino-acids and polypeptides after their oral administration, and to increase in the ketone bodies of the blood. A modified von Bergmann bilirubin elimination test, applied in fifteen women in the first half of pregnancy, showed retention within normal limits. The test in women in the second half of pregnancy showed a moderate retention in seventeen out of twenty. The author concludes that the conception of "liver of pregnancy" in the sense of von Bergmann is further supported by the experiments just quoted. In a previous work the author demonstrated the passage of syncytial cells of the fetus into the maternal circulation. These elements are responsible for the stimulation of the epithelial elements of the pituitary, the thyroid and the suprarenal gland to hyperplasia and hypertrophy. The syncytial albumin introduced into the maternal blood is capable of inducing liver damage and diminution of glycogen. It was demonstrated in a previous work that the histamine-like action of the fetal albumin on the liver and the kidney can be retarded by injections of insulin. The syncytial processes contain a ferment that may be responsible for liver damage. The author believes that this liver damage is the starting point in the development of eclampsia, which results from hyperfunctioning of the pituitary and the suprarenal hormones in the circulating blood. One of the functions of the liver is to retain these hormones or combine them. The failure to destroy the pressor hormone of the posterior part of the pituitary results in irritation of the higher centers of the brain with permanent increase in the blood pressure. The subsequent deprivation of oxygen, edema and increase in pressure of the brain result in eclamptic convulsions. The hormone produces an antidiuretic and vasoconstricting effect on the kidney. The treatment should be directed to suppression of the hormone of the posterior half of the pituitary gland and to protection of

the liver function. In the active treatment, intravenous injection of dextrose is most rational because it protects the liver parenchyma, combats acidosis, supports the heart and provokes diuresis. Eclamptic patients are poor surgical risks. The interruption of pregnancy, however, is an ideal procedure because the removal of the placenta removes at once the stimulus to pituitary hyperfunction.

Hygiea, Stockholm

94 929 960 (Dec 15) 1932

*Apoplectic Hemorrhage of Brain and Softening of Brain F. Tisell—p 934

Apoplectic Hemorrhage of Brain—Tisell says that the most common cause of hemiplegia is cerebral hemorrhage, then encephalomalacia due to thrombosis, general arteriosclerosis or embolism, more rarely brain tumors, pachymeningitis or subdural hematoma. The age is helpful in diagnosis only before 60 and after 80. Cerebral hemorrhage is the most common cause of hemiplegia before 60, hemorrhage and softening of the brain are about equally frequent as the cause between 60 and 70 and even between 70 and 80, and encephalomalacia is the usual cause after 80. The course in cases of encephalomalacia is more protracted. A patient with cerebral hemorrhage who survives the fifth day usually recovers. Before the end of the first twenty-four hours, nothing can be said as to the prognosis. On the whole, a low or normal blood pressure (under 150) immediately after the attack points to softening of the brain, a high blood pressure (over 250) is rather an indication of hemorrhage. Tabulation of 121 cases is given.

Ugeskrift for Læger, Copenhagen

94 1201 1230 (Dec. 15) 1932

Method of Resuscitation H. Nielsen—p 1201

*Blood Sugar Curves After Dextrose Orally and in a Few Cases Intravenously in Certain Acute Infectious Diseases A. Brems and N. J. Nissen—p 1203

Typewriter as Aid in Differential Count of Leukocytes A. Bøge—p 1206

Blood Sugar Curves After Dextrose in Infectious Diseases—Brems and Nissen state that, in pneumonia and angina, sometimes in uncomplicated influenza and measles, and in erysipelas, the alimentary blood sugar curve of the patients is frequently abnormal after ingestion of about 1 Gm of dextrose per kilogram of weight. They consider this abnormal alimentary hyperglycemia a sign of a universal intoxication of the organism, which may possibly pave the way for diabetes, particularly in predisposed patients. The frequent absence of glycosuria in spite of blood sugar values over 200 and up to 260 mg per hundred cubic centimeters probably depends on a toxic injury of the kidneys. Normal alimentary blood sugar curves are often seen in highly febrile patients. Abnormal blood sugar curves after dextrose intravenously in two patients with influenza and angina respectively are shown as further proof that the abnormal alimentary hyperglycemia in patients with acute infectious diseases cannot result from changed conditions of resorption but must be due to a disturbance of the blood sugar regulation caused by intoxication.

94 1231 1246 (Dec 22) 1932

*Open Tuberculosis in Children, with Especial Regard to Average Duration of Life S. Hasle—p 1231

Laryngospasm in Child Aged 6 Tracheotomy H. Videbech—p 1235

Colored Eye Ointment H. Ehlers—p 1236

Open Tuberculosis in Children—Hasle's material comprises 496 certain cases of open tuberculosis in children given sanatorium treatment from 1911 to 1926. Two thirds of all patients are girls, one third, boys. The fate of fifty-six is unknown. Five years after discharge, about 64 per cent of the 440 were dead, about 28 per cent were well and able to work, about 2 per cent were partly capable of work, and about 6 per cent were ill. About one third of the number died within one year after the establishment of bacilli, with an average length of life of seven months after establishment of bacilli, and fully one half died within three years, with an average length of life of thirteen months. Half of the girls died within two years after establishment of bacilli and about one half of the boys during the first four years, with an average length of life after establishment of bacilli of about ten and sixteen months, respectively.

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. 100, No. 10

CHICAGO, ILLINOIS

MARCH 11, 1933

THE PATHOGENICITY OF THE FUSIFORM BACILLUS AND SPIRILLUM OF PLAUT-VINCENT

A CLINICAL AND EXPERIMENTAL STUDY

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It has been quite generally accepted that the Plaut-Vincent organisms have a pathogenic relationship to a variety of clinical entities. Unexceptionable proof of such relationship is wanting. The purpose of this report is to record clinical and experimental observations bearing on this subject. This study was undertaken at the suggestion of Dr. Joseph Brennemann.

In the course of a study of a large series of diphtheria patients Plaut,¹ in 1894, came on five cases of non-diphtheritic membranous angina, at first taken for diphtheria, in which fusiform bacilli and spirochetes were found. Plaut called these "Miller's organisms," since these had been described in 1883 by an American dentist, Willoughby D. Miller, who stated that pathogenic properties had already been ascribed to these organisms by Verneuil and Clado, who had found them in abscesses of the sublingual salivary gland, in submaxillary adenitis and in an abscess of a finger due to a human bite. Although the organisms were found beneath the gum margins in almost every mouth, and their numbers were greatly increased in gingivitis, Plaut believed them to be the causative agent in the anginas because the organisms were present in such great numbers, in two instances in pure culture.

In 1896, and more fully in 1899,² Vincent² described two diseases of the mucous membrane of the mouth and pharynx which he ascribed to the fusospirochetal organisms. The first was a mild stomatitis with superficial ulcerations, with a subfebrile course lasting two or three days. The ulcerations were covered with membranes, which came off easily but reformed to a less degree and gradually disappeared. In the second form a deep ulcer, which bled easily, lay beneath the membrane; the fever was high and a marked adenitis and a reddened edematous pharynx were present. The disease ran a protracted course, in one patient for two months. In the first form he found only the fusiform bacillus while in the severer, ulceromembranous form

the bacillus was associated with a spirillum in fifteen out of eighteen cases. Vincent was unable to reproduce the disease in the mouth or vagina of animals, and subcutaneous injections of the mixed organisms resulted in abscesses in which only pus organisms were found. He was unable to cultivate the organisms and satisfactorily attest their pathogenicity.

Weaver and Tunnichiff³ in 1905 described the presence of the fusiform bacillus and spirillum in ulcerative stomatitis and succeeded in cultivating the bacillus anaerobically. These investigators were unable to produce any disease in rabbits with pure cultures. When mixed cultures were injected into the ears of rabbits, gangrene of the skin and death resulted. Smears after death, however, failed to show fusiform bacilli or spirochetes. Only diplococci and streptococci were present. Abscesses were produced by subcutaneous injection of mixed cultures and the organisms were demonstrated on smear and recultured. The results were identical when the fusiform bacillus alone was present in the culture and when it was combined with the spirillum. Tunnichiff⁴ reported later finding spirilla in old cultures of the fusiform bacillus and believed them to be a later stage of the same organism. Other investigators⁵ do not agree with this interpretation.

Of the many other attempts to prove the pathogenicity of these organisms, the investigations of Kline⁶ and of Smith⁷ are especially noteworthy. The former traumatized the muscles of his animals with a hemostat and injected into the injured part material from gangrenous lungs containing a mixture of fusospirochetal and other organisms. Gangrene with foul smelling pus developed and the animals died. In untraumatized muscles only a small area of infiltration was present in 78 per cent of his animals. Two of three rabbits injected intrabronchially through a tracheotomy tube with the mixture of organisms developed pulmonary gangrene. The results with material from Vincent's angina, dental caries and pyorrhea were identical.

At first Smith^{7b} was also unable to produce abscesses in the groins of guinea-pigs with material from Vincent's angina without lowering the resistance of the tissue by trauma. When, however, two animals were brought to the bedside of the patient and the material was injected with a minimal exposure to the air, typical fusospirochetal abscesses developed in two weeks and were transmitted from animal to animal for fifteen

3. Weaver G. H. and Tunnichiff Ruth. The Occurrence of Fusiform Bacilli and Spirilla in Connection with Morbid Processes. *J. Infect. Dis.* 2: 446, 1905.

4. Tunnichiff Ruth. The Identity of the Fusiform Bacillus and Spirilla. *J. Infect. Dis.* 3: 1-8, 1906. Further Studies on the Fusiform Bacillus and Spirilla. *ibid.* 8: 316, 1911.

5. Krumwiede and Pratt. Fusiform Bacillus—Cultural Characteristics. *J. Infect. Dis.* 12: 458, 1913.

6. Kline B. S. Experimental Gangrene. *J. Infect. Dis.* 32: 481 (June), 1923.

7. Smith D. T. (a) Experimental Aspiratory Abscess. *Arch. Surg.* 14: 231 (Jan., pt. 2) 1927. (b) Fusospirochetal Disease of the Lungs Produced with Cultures from Vincent's Angina. *J. Infect. Dis.* 40: 303 (April) 1930.

From the Otto S. A. Sprague Memorial Institute Laboratory and the Children's Memorial Hospital.

1. Plaut H. C. Studien zur bakteriellen Diagnose der Diphtherie und den Anginen. *Deutsche med. Wochenschr.* 20: 920, 1894.

2. Vincent M. H. Les herbes bactériologiques sur l'angine à bacille fusiforme. *Ann. Inst. Pasteur* 13: 1-9, 1899.

passages. In 20 per cent of some 100 animals Smith produced lung abscesses by intratracheal injection, under ether anesthesia, of the bloody scrapings from moderately severe pyorrhea, simulating the conditions in man during major operations under ether anesthesia. He concluded that the common cause of lung abscess is a mixture of anaerobic organisms, the fusiform bacillus, spirochetes, a vibrio and a hemolytic streptococcus. In all but one of fifty-six cases of lung abscess (spontaneous, bronchiectatic, postoperative, postpneumonic, neoplastic and tuberculous), collected from the literature in which bacteriologic and pathologic studies were made two or more of these organisms were reported present.

Smith made separate cultures of these organisms and injected guinea-pigs with pure cultures, singly and combined. Only a mixture of *Treponema microdentium*, a small fusiform bacillus, a vibrio, and a hemolytic streptococcus would produce the typical foul smelling abscess. With pus from these lesions similar lesions were produced in the lungs of rabbits.

We attempted to lower the resistance of the tissues in guinea-pigs sufficiently to allow the fusiform bacillus in pure culture to gain a foothold. The organism was isolated from spongy gums, and a four-day-old broth subculture was used. Under ether anesthesia the muscles of the hind legs were exposed and severely crushed with a hemostat, and 1 cc. of the broth culture was injected. In a second group boiling water was injected into the muscle, followed several minutes later with 1 cc. of the culture. Other animals were injected with mixtures of the fusiform bacilli, streptococci and staphylococci. These experiments and others with minor modifications were always negative.

If it is assumed for the moment that the Plaut-Vincent organisms, which are probably present in every mouth after the teeth are erupted and in sufficient numbers to be easily demonstrated in from 30 to 80 per cent of individuals, are saprophytes, one might expect to find their numbers very much increased when dead tissue as a result of a clean surgical wound of the buccal mucous membrane is present for them to grow on. The membrane covering the tonsillar beds following tonsillectomy furnishes good and abundant material for investigation. Children up to the age of 13 years, admitted to the Children's Memorial Hospital for tonsillectomy, were studied. For several weeks previously and at the time of operation they were well and had no fever, infection of the upper respiratory tract, or injected pharynx. Immediately following the operation, smears were made from the surface and crypts of the extirpated tonsils and were examined for Vincent's organisms and leukocytes. The children were seen again on the fourth or fifth postoperative day. The condition of the throat, gums and teeth was recorded, and smears were made from the green-gray mucoid, at times dry and cheesy, membrane covering the tonsillar fossae.

Of 125 patients, 108 returned for follow-up study and are included in the series. In fifty (46 per cent), fusospirochetal organisms were present in smears of the tonsils themselves. In thirty-nine (78 per cent) of the fifty, the fusiform bacillus alone was found, while in eleven (20 per cent), both fusiform bacilli and spirilla were present. Only a few organisms were seen in the smears of thirty-seven (68 per cent) cases. In six (12 per cent) they were present in sufficient numbers so that the smears could easily be taken for those coming from cases of Vincent's angina.

On the other hand, fusospirochetal organisms were found in ninety-eight (91 per cent) of the smears from the membranes covering the tonsillar beds. In forty-nine (50 per cent) of these ninety-eight only fusiform bacilli were seen, in the remaining 50 per cent both organisms were present. In thirty-one (31.5 per cent) only a few organisms were found, while in seventeen (17.3 per cent) instances they were so numerous that a diagnosis of Vincent's angina might seem justified from the smears.

While no fusospirochetal organisms were found in smears from the tonsils themselves in 58 (54 per cent) of the 108 cases, they were present in 98 (91 per cent) of the smears from the membranes following operation.

In seventeen cases (16 per cent) the organisms were somewhat more numerous in the smears from the tonsils than in those from the membrane covering the fossae. The difference was usually only slight. In seven of these cases a few organisms were present in the tonsillar smears, while more were found in the smears from the membranes.

These figures probably minimize the actual difference in incidence and number of organisms on the tonsils and on the postoperative membranes covering the tonsillar fossae. Careful, excellent smears could be made from the extirpated tonsils. The children, however, were often refractory and feared being hurt with the applicator. We were frequently able only barely to touch the surface of the membrane with the cotton applicator before the child drew back and resisted any further attempt. The possibility of causing bleeding made it undesirable to resort to any strenuous methods, and we had to be content with this meager material.

In forty out of eighty-six cases in which the condition of the teeth and gums were noted, an abnormal condition varying from small deposits of tartar to many carious teeth and swollen gums with exudate along the margins was found. Of these, eighteen (45 per cent) had only a few fusospirochetal organisms in smears from the postoperative membranes. In twenty-seven (59 per cent) of the remaining cases with apparently normal gums and teeth, the smears showed many of these organisms. Of the seventeen patients with very many organisms in the smears of the membranes, nine had normal teeth and gums and eight had some abnormal condition. Similarly, we noted no constant relationship between the intensity of the injection surrounding the tonsillar fossae or the number of pus cells seen in the smears and the number of Vincent's organisms.

All but one of the 108 children were seen two or more times postoperatively. For the most part, the cases ran the usual, uneventful course to recovery. Six children had a severer course, two developed acute bronchitis, one acute purulent otitis media, one unexplained fever at night for ten days, and two had more than the usual amount of pain on swallowing for a week. Of the six, two showed many and four only a few fusospirochetal organisms in the smears from the membranes.

Guinea-pigs were subjected to analogous conditions. Smears were made from the normal gums of three guinea-pigs. Neither fusiform bacilli nor spirilla were seen in these. Under ether anesthesia the mucous membrane below the lower teeth was abraded with a sterile scalpel till an ulcer was produced and bleeding occurred. Three days later a dry, cheesy exudate, a loosely attached dirty gray membrane, covered the ulcerated

areas. In smears from these in every instance were shown many fusiform bacilli and spirilla indistinguishable from those obtained from human subjects. The fusiform bacillus showed also the same cultural characteristics as those we recovered from spongy gums of human mouths. Five days later the lesions were clean and almost healed, but the organisms were still abundant. On the twelfth day the lesions were healed, but the organisms were present for two days longer. The experiment was repeated with six more animals with identical results.

The methods and drugs used in the treatment of lesions attributed to these organisms are legion. Local applications⁸ of tincture of iodine, chromic acid, glycerin, formaldehyde, potassium chlorate, sodium perborate, acriflavine hydrochloride, copper sulphate, methylene blue (methylthionine chloride, U S P), gentian violet, mercurochrome and hexylresorcinol have all been used, supposedly with good results. Jelinek⁹ reported rapid cures in ulcerative stomatitis and Plaut-Vincent's angina in a large group of soldiers by freezing the lesions with ethyl chloride, and he advises its use in other fusospirochetal conditions such as pyorrhea. Gerstenberger¹⁰ reported that he cured his cases of ulcerative stomatitis with water-soluble vitamin B and believed that an insufficiency of this vitamin in the diet played an important role in the etiology of stomatitis. Driscoll¹¹ had good results with the injection of 5 cc of a 10 per cent solution of antimony and potassium tartrate and believed it specific for Vincent's angina.

In the last decade, probably as a result of success against the spirochete of syphilis, the arsenic derivatives have become popular in the treatment of conditions in which the fusospirochetal organisms are found. In 1923, Morgan¹² used injections of neoarsphenamine in ulcerative stomatitis in which he found these organisms, with improvement in two and a half days, and cure in five and a half days. Eight patients treated both intravenously and locally were well in five and three-quarters days. Barenberg and Bloomberg⁸ used intramuscular injections of sulpharsphenamine alone and combined with local application. The former group cleared up in seven days, the latter in five. The authors state that the treatment did not, however, rid the mouth of the fusospirochetal organisms. Rosenbaum¹³ reported good results from the use of acetarsone by mouth in ulcerative stomatitis. He treated his cases first with acetylsalicylic acid for from twenty-four to forty-eight hours and since they were not improved, gave acetarsone with improvement often in twenty-four hours. Similarly, good results have been claimed for the arsenicals in gangrene and abscesses of the lungs in which these organisms are present.¹⁴ A review of the

combined case reports shows cases in which the pulmonary abscess healed rapidly and spontaneously, and others that improved only for a time with arsphenamine treatment and finally had a fatal outcome.

In view of the evidence for the efficacy of the arsenicals in the treatment of lesions attributed to these organisms, it becomes difficult to explain the presence of these micro-organisms about the gums and in syphilitic ulcerations of the mouth of patients undergoing active antisyphilitic treatment. It is even more awkward to explain the development of an acute Vincent's angina in these patients.¹⁵ Sutton¹⁵ in this connection justly raises the question that if sulpharsphenamine is of value in the treatment of Vincent's angina, should not a comparatively high body saturation protect the individual against the disease?

Four of a group of eight guinea-pigs were injected intraperitoneally with 25 mg of sulpharsphenamine per kilogram of body weight on alternate days for four doses. Smears made from the mouths of the eight animals were negative for the fusospirochetal organisms. Under ether anesthesia, ulcerations of the gums were produced in all eight animals, as in the previous experiments. Smears were made on alternate days and the injections of sulpharsphenamine continued in the four pigs. Similar lesions were produced in a second group of six animals. The lesions in three were painted with a 10 per cent solution of sulpharsphenamine, in the control animals, physiologic solution of sodium chloride was used. In all animals a membrane formed over the ulcerations, and fusospirochetal organisms were found in all of them. The lesions in the animals treated with sulpharsphenamine healed at the same rate, and organisms remained as long as in the control animals.

Since one learns from the literature that the lesions of ulcerative stomatitis attributed to these organisms heal in some five to seven days with any one of many treatments, it seemed of interest to follow the natural course of this disease. Patients with ulcerative stomatitis who came to the outpatient department of the Children's Memorial Hospital were referred to us from the general clinic. The mild and doubtful cases were referred back and only the sixteen more severe ones with many ulcerations in the mouth and reddened, swollen gums were followed. The patients were as a rule seen first by a physician of the attending staff, the diagnosis of ulcerative stomatitis was made, and they were then referred to us. The patients varied in age from 13 months to 12 years. They all had concurrent throat infections. Smears made from the lesions usually showed a great many fusiform bacilli and spirochetes, occasionally only bacilli, and in only two children, both under 2 years of age, no organisms were found. Both of these children fought desperately, and forcing the mouth open caused such bleeding that satisfactory smears were not obtained. The course of the disease was so nearly alike in all cases that, after seeing six or seven of them, we could with a fair amount of assurance advise the parents that the child would feel better in two or three days and be entirely well in a week. We gave small doses of acetylsalicylic acid, which may have made the children feel somewhat more comfortable but can hardly be assumed to have had any direct action on the local condition. The lesions

⁸ Barenberg, L. H. and Bloomberg, M. W. The Use of Sulpharsphenamine in Vincent's Angina and Stomatitis in Children. *J. A. M. A.* 83: 25 (July 5) 1924.

⁹ Jelinek, V. Die Behandlung der lokalen Fusospirochätosen durch Gefrierung. *Wien. klin. Wchnschr.* 36: 393-397 (May 31) 1923.

¹⁰ Gerstenberger, H. J. The Etiology and Treatment of Herpetic (Aphthous and Aphtho-Ulcerative) Stomatitis and Herpes Labialis. *Am. J. Dis. Child.* 26: 409 (Oct.) 1923.

¹¹ Driscoll, T. J. Treatment of Vincent's Angina. *Virginia M. Monthly.* 51: 223 (July) 1924. *abstr. J. A. M. A.* 83: 563 (Aug. 16) 1924.

¹² Morgan, E. A. Ulcerative Stomatitis and Its Treatment by the Intravenous Injection of Arsenic. *Am. J. Dis. Child.* 25: 354 (May) 1923.

¹³ Rosenbaum, H. A. Treatment of Vincent's Angina and Stomatitis. *Illinois M. J.* 30: 175 (May) 1931.

¹⁴ Pilet, Isidore and Davis, D. J. Studies in Fusiform Bacilli and Spirochetes. Their Role in Pulmonary Abscess, Gangrene and Bronchiectasis. *Arch. Int. Med.* 34: 313 (Sept.) 1924. Kline, B. S. and Berger, S. S. Spirochetal Pulmonary Gangrene Treated with Arsphenamines. *J. A. M. A.* 85: 145 (Nov. 7) 1925. Carpenter, E. W. Fusospirochetal Disease of the Lungs. *South Carolina M. A. J.* 25: 325 (Feb.) 1929. Lewis, J. M. and Barenberg, L. H. Pulmonary Gangrene Due to Spirochetes and Fusiform Bacilli. *Am. J. Dis. Child.* 37: 351 (Feb.) 1929. Smith, D. T. Relation of Vincent's Angina to Fusospirochetal Disease of the Lungs. *J. A. M. A.* 84: 23 (Jan. 4) 1920.

¹⁵ Sutton, J. C. Vincent's Angina Occurring in a Patient Under Treatment for Syphilis. *J. A. M. A.* 83: 1919 (Dec. 13) 1924. Williams, G. A. Vincent's Angina. A Case Occurring During Antisyphilitic Treatment. *Arch. Dermat. & Syph.* 20: 322 (Sept.) 1929.

in one case were painted with mercurochrome solution before the patient was referred to us. Another had received a dilute peroxide gargle because the odor was especially foul. The children were all well in from four to seven days. The report of a few cases is included to demonstrate the natural course of the condition.

REPORT OF CASES

CASE 1—G G, a boy, aged 7 years, seen, July 20, 1931, complained of fever, headache, sore mouth and loss of appetite of two days' duration. The pharynx was reddened and there were many small ulcerations on the tongue, lips, and buccal mucous membrane. A diagnosis of ulcerative stomatitis was made. Smears from the lesions showed many fusiform bacilli and fewer spirochetes. The laboratory diagnosis was Vincent's disease. The child was given 5 grains (0.3 Gm) of acetylsalicylic acid three times daily. Three days later the condition was somewhat worse, with new lesions on the gums and tongue. July 27, the patient came into the examining room smiling and reported that he had been feeling well and had been able to eat for a number of days. The lesions were practically healed, the membrane covering the ulcerations entirely gone. He was not seen again for a month, when it was reported that he had remained well.

CASE 2—M R, a girl, aged 4 years, seen, Aug 13, 1931, complaining of a sore mouth and inability to eat for three days, had several ulcerations of the lips and buccal mucous membrane. The pharynx was reddened. In smears from the lesions were seen many fusiform bacilli and spirochetes, and a laboratory diagnosis of "Vincent's disease" was made. The child was given 5 grains (0.3 Gm) of acetylsalicylic acid three times daily. August 17, she was feeling well and eating regularly. The lesions were practically healed. The bases of the ulcers were small and clean. The patient failed to return for further follow up.

CASE 3—P S, a girl, aged 8 years, seen, Aug 17, 1931, complained of a cold and a sore throat of six days' duration, and sores in the mouth and on the lips for four days. There were many small ulcerations on the lips, gums, tongue and pharynx and a larger one on the palate. The pharynx was reddened. The laboratory report of examination of smears from the lesions read "Numerous fusiform bacilli and spirochetes, too many per field to count." The patient received 5 grains (0.3 Gm) of acetylsalicylic acid three times a day. Four days later, August 21, she was feeling well. The gums and mouth appeared normal except for a small, clean, healing ulcer on the palate. The patient failed to return for further follow up.

CASE 4—V B, a boy, aged 12 years, seen by an attending pediatrician in the outpatient department, Aug 24, 1931, complained of a sore throat and pain on swallowing of four days' duration. There were many ulcerations on the palate, buccal mucosa, gums and posterior pharyngeal wall. In smears from the lesions were many fusiform bacilli and spirochetes. A laboratory diagnosis of Vincent's angina was made and the lesions were painted with mercurochrome.

We saw the patient for the first time, August 26. He was feeling somewhat better but still had considerable pain on swallowing. There were many small ulcerations covered with a dirty gray membrane on the tongue, lips and palate. The gums were reddened and swollen, and exudate was present along the gingival margins. The patient was given 5 grains (0.3 Gm) of acetylsalicylic acid three times daily. August 28, he was feeling perfectly well. The mouth was healed except for two small, clean ulcerations.

CASE 5—S P, a girl, aged 2 years, was brought to us, Aug 26, 1931, with the history of having had a cold and fever for nine days and swollen gums covered with white spots for four days. The child was irritable and refused to take anything but water and a little milk. The mucosa of the pharynx and mouth was reddened, the gums were swollen and bled easily. Many small ulcerations were seen on the gums and buccal mucosa. Smears from these showed many fusiform bacilli and somewhat fewer spirochetes. The child was given 2 grains (0.13 Gm) of acetylsalicylic acid three times a day.

August 31, she was feeling well and was taking solid food. The throat was still slightly reddened, but the ulcerations were healed and the gums were swollen only about one canine tooth. Four days later the mouth and pharynx appeared entirely normal. The child was eating well and had gained weight.

CASE 6—A R, a girl, aged 3 years, seen Sept. 22, 1931, had been ill with fever and a sore mouth for four days. The throat was inflamed and a mucopurulent discharge could be seen dripping down from the nasopharynx. There were many small ulcerations on the gums, tongue and buccal mucous membrane. Smears from the lesions showed the presence of fusiform bacilli but no spirochetes. The child was given 2 grains (0.13 Gm) of acetylsalicylic acid three times a day.

Three days later the lesions were clean and healing. The child ate well and had gained weight. September 28, only faint outlines of the former ulcers were still visible. The mouth was otherwise normal and the child well.

CASE 7—R T, a girl, was seen, April 22, 1931, because of an infection of the upper respiratory tract. The mouth at this time was normal. Two days later the general condition of the patient was worse and there were many shallow ulcerations covered with dirty gray membrane on the buccal mucosa and on the anterior tonsillar pillars. In smears from the lesions, fusiform bacilli but no spirochetes were seen. The patient was given 5 grains (0.3 Gm) of acetylsalicylic acid three times a day.

She was seen by one of the attending pediatricians, April 28. He reported that the lesions were entirely healed and that the child was well.

COMMENT

Failure to produce lesions in animal experiments with pure cultures of the fusiform bacillus alone, or by injection into traumatized tissue, obviously has no conclusive significance. The organisms may have lost their virulence during the process of isolation or the laboratory animals may not have been susceptible. When, however, these organisms are found in practically every normal mouth, about spongy gums, in pyorrhea alveolaris, ulcerative stomatitis, angina, tonsillitis, diphtheria, scarlet fever, stomatitis due to mercury and bismuth compounds, syphilitic ulcerations of the mouth,¹⁶ noma, ulcers of the bronchial mucosa, and bronchiectasis, in tuberculous, neoplastic, spontaneous, postpneumonic and postoperative lung abscesses, around the clitoris or the uncircumcised penis, in vulvitis, vaginitis, and balanitis gangraenosa,¹⁷ it seems improbable that these organisms play the determining rôle in the causation of all these conditions. It would seem at least as probable that they are saprophytes and opportunists growing on lesions caused by other agents and only rarely, if ever, becoming pathogenic.¹⁸ Our finding that in clean surgical wounds of the mucous membrane of the mouth and pharynx, in guinea-pigs and children alike, the number of fusospirochetal organisms increases markedly, seems further support of this view.

One may well question also the rationale of taking smears for Vincent's organisms in ulcerative stomatitis and anginas for diagnostic purposes. Whether many, few or no fusospirochetal organisms, singly or combined, are found, the interpretation of the case and its course remain unchanged. In the present status of knowledge, we feel justified in questioning a fusospiro-

16 Stookey, P F. Vincent's Angina, J Iowa M Soc. 19 49 (Feb) 1929.

17 Fuller, C R, and Cottrell, J C. Infection with Organisms of Vincent's Angina Following Human Bite, J A M A 92 2017 (June 15) 1929.

18 Larson and Barron. Report of a Case in Which the Fusiform Bacillus was Isolated from the Blood Stream J Infect Dis 13 429 1914. Dick, G F, and Emge L. A. Brain Abscess Caused by the Fusiform Bacilli, J A M A 62 446 (Feb 7) 1914. Thompson, L E. Fatal Case of Brain Abscess from Vincent's Angina Following Extraction of a Tooth Under Procaine Hydrochloride, J A M A 93 1063 (Oct 5) 1929.

chetal pathogenicity, and that is our sole purpose in this report. In the last analysis, the onus probandi would seem to rest with those who maintain that these organisms are pathogenic.

SUMMARY

1 Attempts at producing lesions in any way similar to those commonly attributed to the action of the Plaut-Vincent organisms by injecting pure cultures of fusiform bacilli into areas of traumatized tissue in guinea-pigs were unsuccessful

2 The fusospirochetal organisms were found in 45.4 per cent of tonsils removed from 108 children

3 In the same children these organisms were found in 91 per cent of the membranes that formed over the tonsillar beds after tonsillectomy, and usually in greater numbers than in the tonsils themselves

4 The organisms were found constantly in smears of the membranes that formed over traumatic ulcers produced in the mouths of guinea-pigs

5 Neither the injection nor the local application of sulpharsphenamine hindered the appearance of these organisms in the lesions in the mouth of guinea-pigs or hastened the healing of the lesions

6 Sixteen consecutive cases of severe ulcerative stomatitis in children all healed in some four to seven days without treatment. This compares favorably with the reports of cases treated with various drugs and other forms of treatment

7 The value of diagnostic smears for Vincent's organisms as a means of establishing a pathogenic relationship of these organisms to a suspected lesion is questioned

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HEART IN BILATERAL OBSTRUCTIVE
EMPHYSEMA DUE TO TRACHEAL
FOREIGN BODIES

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ST LOUIS

Obstructive emphysema due to foreign bodies in the bronchi was described by Iglaue¹ in 1912. Since then, numerous articles on the localization of nonopaque foreign bodies through the presence of obstructive emphysema have appeared in the literature. Notable are those of Manges² and Jackson³. The recent work of Lundskog and Van Allen⁴ on the experimental production of obstructive emphysema has greatly increased the knowledge of the physiology of the subject. They

have shown that obstructive emphysema occurs whenever a main bronchus is obstructed by a one-way valve mechanism which permits the ingress of air during inspiration and retards its egress from the lobe during expiration. They found also that obstruction of a complete lobe is necessary for the production of obstructive emphysema. Because of collateral respiration, lobular expiratory obstruction is not followed by obstructive emphysema unless there is interference with

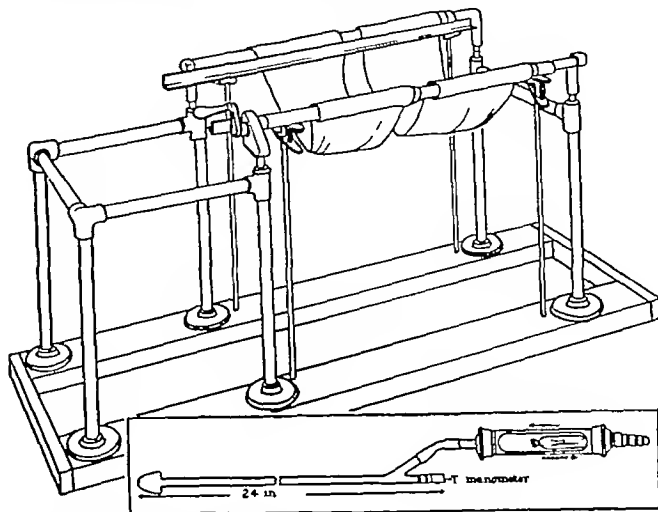


Fig 1—Animal roentgenographic table. The inset shows tracheal tube with olive and flutter valve attached

the collateral respiration of the part from inflammatory changes in the lung. The radiologic signs of unilateral obstructive emphysema have been listed by Manges as: (1) increased transparency of the affected lung, (2) depression and partial fixation of the diaphragm on the affected side, (3) the displacement of the heart and mediastinal structures away from the affected side, (4) increased excursion of the diaphragm on the unaffected side."

An example of bilateral obstructive emphysema resulting from tracheal foreign body is illustrated in his article by films taken in full expiration both before and after removal of the foreign body. Manges states that the "diaphragm [is] depressed on both sides and is lower on expiration than on inspiration, being overcome by the more powerful intercostal muscles of respiration, the heart is more vertical appearing in its entirety above the diaphragms."

At the risk of being irrelevant we would remark at this point on the difficulties of securing films of the chest at full inspiration and full expiration in infants, young children or adults who are unconscious or delirious. We have succeeded in overcoming these by the method described later, which is also applicable to experimental animals.

In studying a recent case of suspected foreign body in the trachea, one of us (Wilson) was impressed by the difference in size of the cardiac silhouette in the inspiratory and expiratory films of the chest. In the fluoroscopic examination of this patient preceding bronchoscopy it was noted that both leaves of the diaphragm occupied low positions and had little respiratory excursion. At the moment of full expiration the heart seemed "squeezed" between the two overinflated lungs and showed a marked diminution in its size. This decrease is far in excess of that existing between the extremes of cardiac systole and diastole. With the onset of the next inspiration and release of pressure, the heart assumed its normal size and shape.

From the Department of Radiology, Washington University School of Medicine and the Edward Mallinckrodt Institute of Radiology.

1 Iglaue Samuel. Three Cases of Foreign Body in the Bronchi. *Lancet Clinic* 107: 603, 1912. Foreign Bodies in the Bronchi. *Interstate M J* 1: 924-929 (Oct.) 1917.

2 Manges Willis. The Roentgen Ray Diagnosis of Nonopaque Foreign Bodies in the Air Passages. *Am J Roentgenol* 9: 288-304 (May) 1922.

3 Jackson Chevalier. Spencer W. H. and Manges Willis. The Diagnosis and Localization of Nonopaque Foreign Bodies in the Bronchi. *Am J Roentgenol* 7: 27 (June) 1920. Jackson Chevalier. A New Diagnosis of Signs of Foreign Body in the Trachea or Bronchi. The "Asthma-toid Wheeze." *Am J M Sc* 156: 625 (Nov.) 1918. The Symptomatology and Diagnosis of Foreign Bodies in the Air and Food Passages. Based on a Study of 89 Cases. *ibid* 161: 25 (May) 1921. Mechanism of Physical Signs in Neoplastic and Other Diseases of the Lung. *J A M A* 95: 1319-1344 (Aug. 30) 1930.

4 Lundskog G. E. and Van Allen C. M. The Aerodynamics of Bilateral Obstructive Emphysema. *Arch Surg* 24: 204-210 (Feb.) 1932. Van Allen C. M. and Jung T. S. Postoperative Atelectasis and Collateral Respiration. *J Thorac Surg* 1: 114 (Oct.) 1931. Van Allen C. M. Obstructive Pulmonary Emphysema and Collateral Respiration. *Gynec & Obst* 30: 103-107 (Sept.) 1931.

Bronchoscopy was performed by Dr Aibuckle. A foreign body (peanut) was found obstructing the trachea a few centimeters above the carina. Widening of the air passage with each inspiration and narrowing during expiration producing an expiratory valvular obstruction was observed bronchoscopically. The foreign body was removed. Films taken the following day in full inspiration and expiration revealed normal cardiac size and relationships in both respiratory phases. It will be seen in the films taken before removal of the foreign body that both leaves of the diaphragm occupy a slightly lower position on expiration than on inspiration,² both lung fields show greater air content than normal, and the cardiac transverse diameter shows a decrease of 1.3 cm on expiration. The cardiac apex lies opposite the lower border of the eleventh vertebra in both films, indicating an actual decrease in cardiac size rather than lengthening as a result of the depression

figure 1, was attached to one limb of the Y, the second arm being connected to the mercury manometer in order to obtain intratracheal pressure readings. Control films of the chest were made in inspiration and expiration, inhalations of 10 per cent carbon dioxide-oxygen mixture being used to secure full inspiratory and expiratory excursions of the chest wall and diaphragm. The olive of proper size with the attached tube was introduced into the upper trachea by a laryngoscope. The mercury manometer and flutter valve were then attached to the Y arms and the development of obstructive emphysema was observed fluoroscopically. Films were taken in inspiratory and expiratory phases of respiration with the animal in the supine position on the animal radiographic table (fig 1). This table is fitted with a canvas sling to suspend the animal above a trochoscope, which permits fluoroscopic observations and the making of roentgeno-

TABLE 1—Transverse Cardiac Diameter in Dogs With and Without Obstruction

	Dog 1		Dog 3		Dog 8			Dog 5		Dog 6	
	Postero	Anterior	Postero	Anterior	Lateral			Postero	Anterior	Postero	Anterior
	Control	Obstruction	Control	Obstruction	Carbon Dioxide	Obstruction	Oblique Obstruction	Control	Obstruction	Control	Obstruction
Transverse cardiac diameter, cm											
Inspiration	5.6	5.8	6.0	6.0			5.0	5.8	6.2	6.1	5.8
Expiration	5.9	5.4	5.1	4.3			4.6	6.1	5.3	6.2	5.2
Difference, cm	+0.3	-0.4	+0.1	-0.7			-0.4	+0.3	-0.9	+0.1	-0.6
Difference, per cent		6.8		14					14		8.6
Surface area, sq cm											
Inspiration	33.70	39.66	25.80	25.80			27.73	34.63	30.24	38.05	37.41
Expiration	30.34	37.41	26.44	23.32	33.54	30.90	25.15	35.475	36.18	36.12	34.18
Difference, cm	+0.6	-2.25	+0.04	-2.58		-2.59	-2.58	+0.84	-3.16	-1.03	-3.23
Difference, per cent		5		10		7	9		8		8.6

TABLE 2—Transverse Cardiac Diameter in Persons With and Without Obstruction

	Case 1		Case 2		Case 3		Case 4
	Obstruction	No Obstruction	Obstruction	No Obstruction	Obstruction	No Obstruction	Obstruction
Transverse cardiac diameter, cm							
Inspiration	7.5	7.9	9.4	9.0	8.3	7.9	10.2
Expiration	6.2	7.6	7.6	8.8	5.9	7.6	9.3
Difference, cm	-1.3	-0.3	-1.8	-0.2	-2.4	-0.3	-0.9
Surface area, sq cm							
Inspiration	54.82	51.60	74.82	74.82	54.821	47.78	89.79
Expiration	47.03	52.24	68.37	70.35	40.635	47.73	74.75
Difference, cm	-7.74	+0.64	-6.45	+4.51	-14.19	+0.05	-14.04
Difference, per cent	14		8		25		16

of the diaphragm by the overinflated lungs, as claimed by Manges. During the past few months we have seen three other cases of foreign bodies which have shown bilateral obstructive emphysema with the "cardiac squeeze" easily demonstrable on fluoroscopic examination and a marked decrease in cardiac size in the film taken in expiration. In order to confirm the changes in heart shadow observed in these cases and to determine whether or not the compression of the heart and great vessels by the overinflated lungs contributes to the signs of bilateral obstructive emphysema, we undertook some experimental studies of artificially produced bilateral obstructive emphysema.

METHOD

We employed a long hollow brass tube with threaded ends, to one of which could be fitted metal olives of varying size to serve as obturators of the trachea. The other end of the tube was fitted with a Y connection piece. An ordinary flutter valve, as indicated in

grams by simply substituting the cassette for the screen and changing the exposure factors. This insures a true postero-anterior exposure (the most desirable), and it is unnecessary to move the animal. The exposure time used was one-twentieth second. Exposures were made with the animal in postero-anterior, lateral and oblique projections. Complete expiratory valvular obstruction could be instituted at will by attaching or detaching the flutter valve. Manometric readings were noted from time to time during the experiments. Accurate tracheal pressure readings could be obtained only with the valve in place, making a closed system, though oscillations of the mercury were noted without the valve in place. These varied from minus 10 to 20 mm of mercury (inspiration) to plus 10 to 20 mm of mercury (expiration) with quiet breathing. With the institution of expiratory valvular obstruction the intratracheal pressure mounted as the amount of trapped air increased, so that marked obstructive emphysema readings of minus 2 to 5 mm of mercury on inspiration and

plus 40 to plus 60 mm of mercury on expiration were noted

The control films were compared with the films taken during tracheal obstruction and the transverse cardiac diameters measured. These measurements were made by dropping a perpendicular from the spinous process

bronchoscopy failed to reveal the presence of obstructive emphysema. Because of the suggestion of a "cardiac squeeze" noted fluoroscopically, these films were repeated in the erect position and show a decrease in cardiac shadow on expiration

COMMENT

The chest roentgenograms in four cases of obstructive emphysema show identical conditions of (1) decrease in size of cardiac silhouette, (2) overinflation of the lungs, and (3) depressed diaphragms in the expiratory phase of respiration. The percentage of decrease in the size of the heart as measured by surface area in these cases varied from 8 to 25. The decrease in transverse diameter varied from 8.8 to 28 per cent.

The experimental films of four dogs, on each of which repeated observations were made, showed well developed bilateral obstructive emphysema as a result of expiratory valvular obstruction and definite "cardiac squeeze" with each expiratory effort on fluoroscopic examination. Measurements of the transverse cardiac diameter showed a decrease of from 6.8 to 14 per cent with expiratory valvular obstruction. Planimetric measurements showed a decrease of from 7 to 10 per cent in surface area as compared with surface area on inspiration.

The explanation of the decrease in cardiac size is to be found in the famous experiments of Valsalva⁵ (1760), who first observed on man the swelling and emptying of the jugular vein coincident with expiration

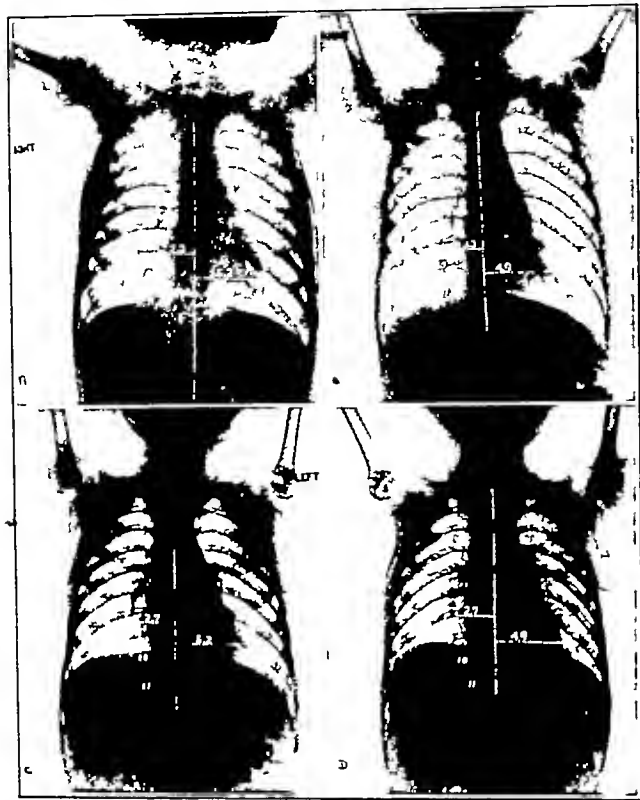


Fig 2 (case 1)—A and B taken on inspiration and expiration respectively before removal of foreign body (peanut in trachea). C and D taken on inspiration and expiration respectively the day following removal of the foreign body.

of one of the upper dorsal vertebrae through the heart shadow and taking the usual median right and left cardiac measurements their sum being taken as the transverse diameter of the heart.

The surface area of the heart shadow was measured by planimetric tracings and is given as a check against the changes indicated by the measurements of the transverse diameter of the heart. Cardiac size in square centimeters surface area is given in table 1, together with the differences observed in inspiration and expiration and the percentage of decrease in surface area on expiration with tracheal valvular obstruction.

The same procedure was carried out with the films of the four cases of tracheal foreign bodies. The roentgenograms in the first three cases were taken with the patient supine at a four foot (12 meters) target film distance and exposure time of from one-thirtieth to one-twentieth second. When cooperation of the patient was impossible because of crying or struggling especially in infants we used inhalations of small amounts of 10 per cent carbon dioxide-oxygen mixture administered through a tunnel held in front of the nose and mouth. With the increased amplitude and slowing of respiration that results we can usually obtain fairly satisfactory films in full inspiration and expiration. In case 4 (table 2) follow-up films after removal of the foreign body were not obtained because of the patient's early discharge from the hospital. However, one set of films taken with the patient supine before

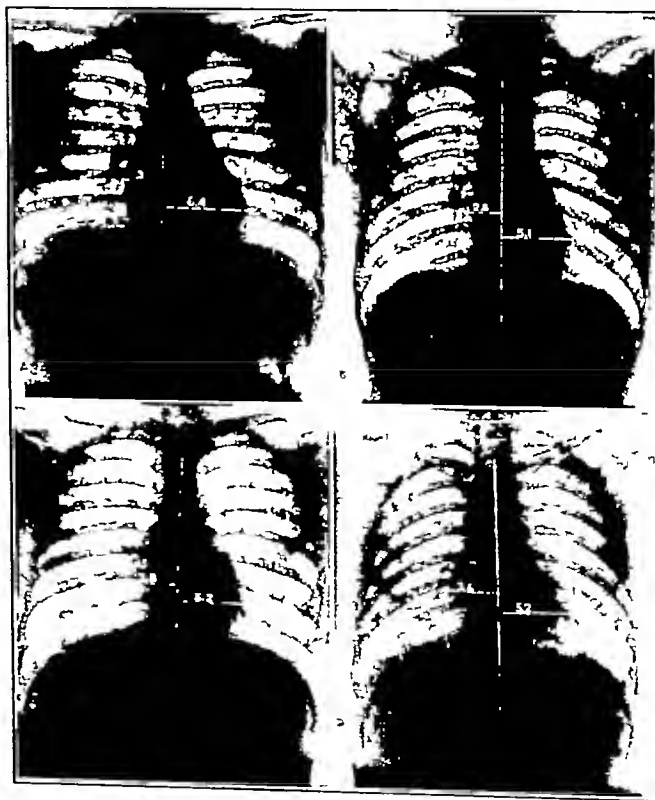


Fig 3 (case 2)—A and B taken on inspiration and expiration respectively before removal of foreign body (sand burr in larynx). C and D taken on inspiration and expiration respectively the day after removal of the foreign body.

and inspiration. 'If the glottis is closed after a deep inspiration and a strenuous and prolonged expiratory effort is then made such pressure can be exerted on the

⁵ Valsalva quoted from Luciani's Human Physiology (translated by Frances A. Welby). Circulation and Respiration. London: Macmillan & Co. 1929. 1911.

heart and intrathoracic vessels that the movements and flow of the blood are temporarily arrested"

Valsalva's experiment must be borne in mind in the interpretation of films taken to determine the presence of bilateral obstructive emphysema. Expiration against a closed glottis will produce the roentgenographic picture of obstructive emphysema due to tracheal or laryngeal foreign body. However, one should have little difficulty in the differential diagnosis if fluoroscopic examination reveals the "cardiac squeeze" repeated with each expiratory effort, together with the low fixed position of the diaphragm and increased air content of the lungs.

The inconstant presence of obstructive emphysema has been particularly emphasized by Manges in cases of unilateral obstructive emphysema. It is equally true of bilateral obstructive emphysema. We have observed one case fluoroscopically in which a movable foreign body of the trachea produced signs of bilateral emphysema, then emphysema of the right lung with swing of the mediastinal contents to the left, and a few moments later the signs of expiratory obstruction of the left lung with displacement of the heart to the right.

We have been unable to show experimentally a decrease in the size of the heart shadow as a result of incomplete tracheal valvular obstruction though some increase in the transparency of the lungs, and depression

The very marked decrease in the size of the cardiac shadow with complete expiratory valvular obstruction indicates an actual heart tamponade of brief duration during the respiratory cycle.

Beck and Isaac⁶ have shown in their experiments on pneumocardiac tamponade that with rise in pericardial pressure there occurs (1) a temporary fall in arterial

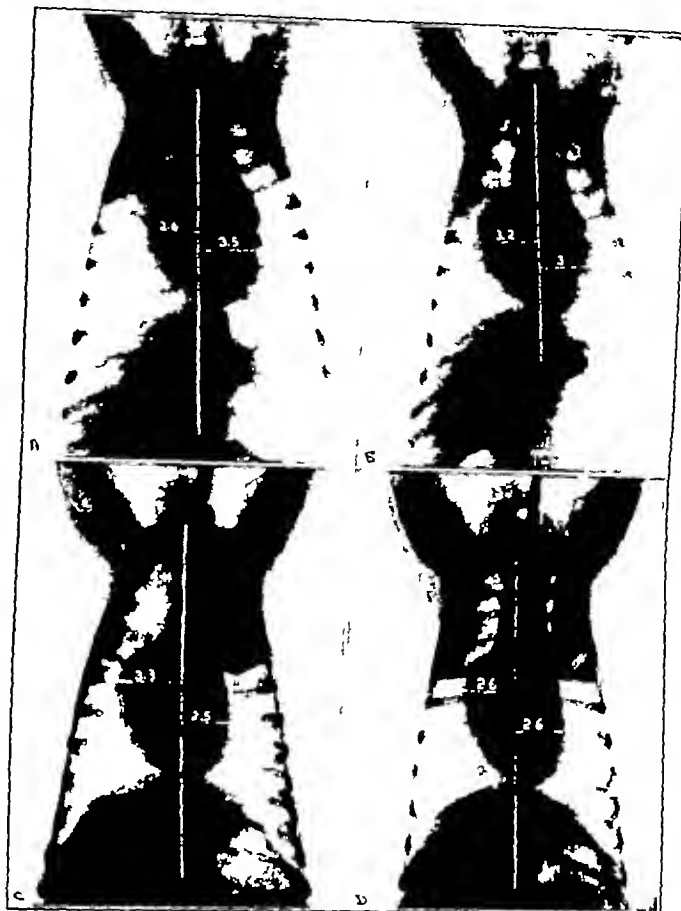


Fig 5 (dog 6) —Control roentgenograms A and B taken on inspiration and expiration, respectively (carbon dioxide inhalations). C and D taken on inspiration and expiration, respectively, with tracheal expiratory obstruction.

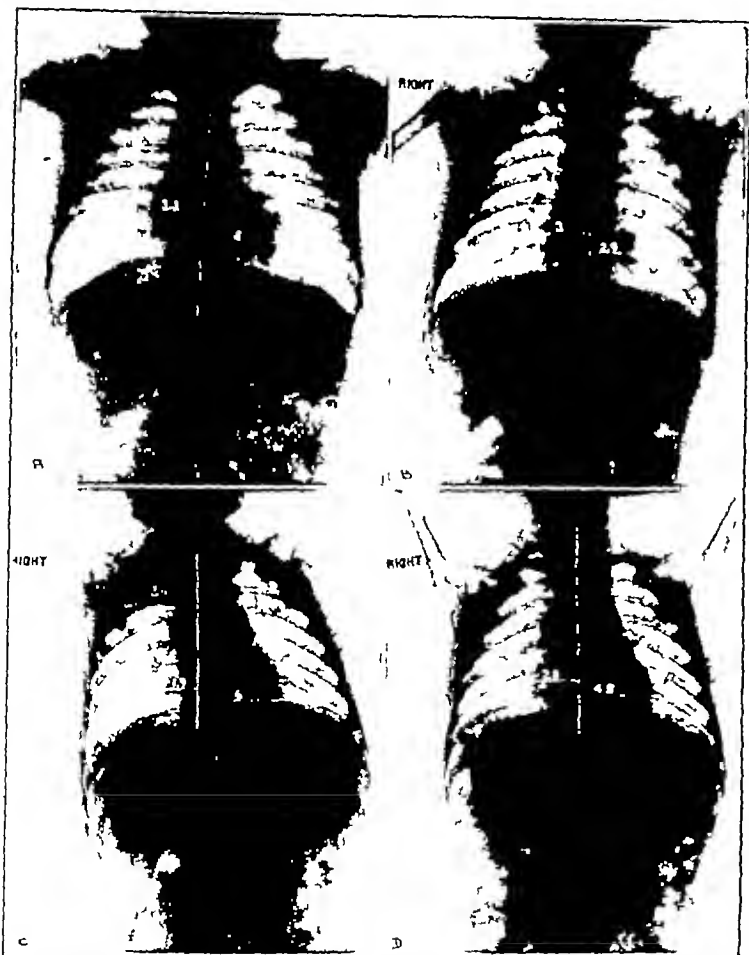


Fig 4 (case 3) —A and B taken on inspiration and expiration, respectively, before removal of foreign body (apple core in trachea). C and D taken on inspiration and expiration, respectively, the day after removal of the foreign body.

pressure, (2) a temporary fall in pulse reading, (3) a sustained rise in venous pressure with accentuation of venous pulsations, and (4) a rise in respiratory rate and an increase in amplitude. In bilateral obstructive emphysema, cardiac tamponade developed at the height of the full expiratory phase of respiration with compression of heart and great vessels by the overinflated lungs. This causes an obstruction of the venous flow into the thorax with decrease and arrest of venous return to the right auricle, the intrathoracic pressure on expiration mounts rapidly and probably exerts its effects on all the thoracic vascular structures in the order of their relative intraluminal pressures. With incomplete filling of the right auricle as a result of obstruction to venous return, together with obstruction in blood flow from the lungs to the left auricle, the intracardiac blood volume must be correspondingly decreased. This, we believe, accounts for the rather rapid decrease in the size of the heart observed fluoroscopically at the end of expiration in expiratory valvular tracheal obstruction.

SUMMARY

1 Fluoroscopic and roentgenographic change in cardiac outline (a decrease in size) on expiration in bilateral obstructive emphysema was observed in one

of the diaphragm may be noted with incomplete expiratory obstruction. Control films taken before and after introduction of the olive and tube into the trachea showed no other appreciable difference in cardiac size than could be ascribed to systole and diastole of the heart, though the diameter of the air passage was in some instances decreased by one half.

case of laryngeal and three cases of tracheal foreign bodies with bilateral obstructive emphysema.

2 Experimental bilateral obstructive emphysema was produced in dogs and measurements of the transverse cardiac diameter and cardiac surface area were taken. These confirm the observations noted fluoroscopically and roentgenographically in cases of bilateral obstructive emphysema resulting from foreign bodies in the larynx and trachea.

3 The use of carbon dioxide inhalation to obtain roentgenograms in full inspiration and expiration is suggested to insure the demonstration of the presence of obstructive emphysema in children and infants

510 South Kingshighway Boulevard

THE INCIDENCE OF RINGWORM OF THE FEET IN A UNIVERSITY GROUP

CONTROL AND TREATMENT

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An examination of the diagnoses made in the dermatologic clinic of a student health service discloses an incidence similar to figures arrived at in dispensary and private practice. The principal variation is due to the constancy of the age group seen—an average age of 19½ years. In a group of 390 new skin cases seen during the first six months of 1932 in the Student Health Service of the University of Pennsylvania, ringworm infections in general constituted by far the largest percentage. Such a diagnosis was made 145 times, or in 37 per cent. Of these cases, ringworm of the toes was seen in sixty-nine cases, or practically 50 per cent. This is of course no real index of the occurrence of ringworm of the toes, as this number represented only those cases troublesome enough to cause the affected person to seek treatment or severe enough to be referred for dermatologic advice. The incidence of ringworm, to which I shall refer later, is of much more formidable proportions.

The cases seen in consultation were associated with symptoms and in some instances provided a definite temporary disability. Next in frequency to the toe cases was involvement of the groin, which occurred in one sixth of the ringworm patients. Of less importance, in the light of their occurrence, were plantar warts, and ringworm of the fingers, of the body and of the nails. An important consideration in student cases is the frequency with which self-treated (and mistreated) or overtreated infections are seen. This will always have to be contended with as long as the inspired accounts of ringworm cure-alls appear in the daily press and are disseminated by radio.

In our management of these cases, we were bound by two considerations to work within the therapeutic limits available, which in the main is advice and prescription medication and the necessity for getting the patient under control as rapidly as possible. The latter not only is the usual aim with all patients but is most important as a method of prevention. In the manage-

ment of these cases I generally employ the term "arrested" in lieu of the appellation "cure." If the latter does take place, and I am quite sure that it does frequently, reinfection is almost certain to follow as the patient relaxes in vigilance and exposure again takes place. Consequently both individual and mass control is most desirable. Strictly speaking, prevention is not the paramount consideration with us, as Dr. Spring, associated with me in this work, has shown that entering freshmen from secondary schools are infected as high as 50 per cent.

SURVEY

We knew we were seeing but a tithe of the ringworm in the consultation room, and we desired information on the vast group of "silent cases" represented by the subthreshold clinical and symptomatic cases. In any method of control, this group is of major importance. Here were the active carriers and disseminators. Other surveys have given figures, ranging from Castellani's¹ 30 per cent in New Orleans medical students to 85 per cent as found by Legge, Bonar and Templeton² in the University of California. The latter investigators found 53 per cent of the newly entered men students to be infected.

During the spring of 1932 we examined 500 consecutive men students taking the regular prescribed gymnasium course. At the same time we examined 285 women students. As the results in the two groups were surprisingly similar, 60 per cent positive cases among the men and 57 per cent among the women, the results among the men will alone be analyzed.

The group of women students represented those taking swimming in addition to gymnasium work. These students were examined in a manner similar to the men students. In addition, a smaller group was examined both before and after the swimming period in order to test the effect of chlorinated water on the fungus between the toes.

All the men students had attended at least four months of gymnasium work, with an average of about one and one-half years. The average age of the student was 19½ years. Less than 2 per cent were foreign born, and 56 per cent lived at home. A preliminary questionnaire was filled out, giving such data as age, class, college, residence, rooming conditions, contacts and general hygiene. The students were further questioned concerning any symptoms referable to the feet—particularly sweating, itching, soft corns and plantar warts. Inquiry was made concerning any present or previous type of ringworm infection that may have been associated. Previous treatment was recorded when stated.

The status of the feet clinically was noted as "clinically negative" or "borderline," or else described as chronic exfoliative type, macerative, hyperkeratotic or acute vesicular, as the case might be. The extent of the process was noted, as well as any evidence of ringworm elsewhere on the body.

Scrapings were taken from all available areas involved on the feet, as abundant an amount as possible was taken. Part of the material was examined directly under the microscope, the caustic potash technic being used. Another portion was planted on a tube each of Pennsylvania medium (a modified Sabouraud medium) and conservation agar.

Read before the thirteenth annual meeting of the American Student Health Association, New York, Dec. 29, 1932.
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¹ Castellani, Aldo. *Mycosis Brit. M. J.* 1:958 (June 2) 1928.
² Legge, R. T., Bonar, Lee, and Templeton, H. J. *Incidence of Foot Ringworm Among College Students J. A. M. A.* 93:170 (July 20) 1929. *Ringworm of the Feet ibid.* 92:1507 (May 4) 1929.

Of the 500 students examined, 297 (60 per cent) had gross evidence of ringworm. Most of these cases were either borderline or of the chronic exfoliative type. Acute vesicular cases were unusual, probably explained by the season of the year (January). There was evidence of associated ringworm lesions but sixteen times in this group—surprisingly small. The most common additional involvement was tinea cruris with involvement of the scrotum. Infections of the hands and nails, and the presence of plantar warts were rare complications. Soft corns appeared but twice in contradistinction to the findings of Hulsey and Jordan,³ who conducted a more limited survey among our medical students in 1925.

Clinically the most outstanding symptom among these students was the occurrence of immoderate foot sweating—an increase of 50 per cent over the noninfected group. We found, too, that sweating appeared to have a marked deterrent effect not on the causation of ringworm but on the laboratory confirmation of what was an apparent bona fide clinical type. Previous treatment was effective mainly in making the cultural confirmation difficult.

TREATMENT AND CONTROL

The management of ringworm of the toes has become unnecessarily involved and complicated. This is largely due to the widespread publicity given to it as "athlete's foot" and the multitude of sure-cure applications offered to both the medical profession and the public. The fact that a number of these infections will respond to almost any agent employed does not tend to rationalize a proper therapy. Consistently good results can be obtained by following a simple treatment in accordance with a few general rules. At least one can avoid the mistake of overtreatment.

If one considers ringworm of the toes in its stages or in its status as a form of dermatitis, acute or chronic, one can treat on morphologic principles and obtain a rather prompt response. I do not believe there is any one specific for ringworm, despite the success *in vitro* of such chemicals as certain of the dyes, volatile oils, and organic acids. Proper foot hygiene, that is, the frequent changing of shoes and socks and the thorough drying of the toes after washing, is the first consideration. Then the use of wet compresses or antiseptic soaks, followed by the use of ointments either bland, stimulating or keratolytic, is in order. Finally, one has recourse to stronger lotions and powders in the chronic type of infection.

The acute, moist and vesicular type, often with a superimposed pyogenic infection, demands the most careful choice of bland applications, and it is this type of case that so often may be overtreated by the enthusiastic proponent of salicylic acid. The chronic or carrier stage may respond to any irritating antiseptic, or at least can withstand any amount of home remedies. X-rays help materially in shortening the course of the infection, but a long series of roentgen treatments serves no good purpose, does not permanently cure, and should be avoided. In the Student Health Service we have not had recourse to either quartz lamp or x-rays, and our results are comparable to those I obtain in dispensaries in which these modalities are available.

There are some complications attendant in a small proportion of the cases that make their management a problem indeed. I refer to those cases of acquired sensitization both to their ringworm infection and some

other allergen, and to the susceptible patient who develops a sort of systemic dermatophytid. There are likewise certain individuals who have an extremely difficult time in combating the combined pyogenic-fungal infection. In this group one may go to great lengths in the systemic and dietary investigations, with treatment prolonged and arduous.

For compresses or soaking foot baths in the acute stage, I use saturated solution of boric acid or Burow's solution, 1:16. For the subacute (and in some acute cases), potassium permanganate, 1:4,000, has no equal. I prescribe this in the form of a hot foot bath, fifteen minutes before bedtime. The soaks or compresses are followed in the acute cases by a 5 per cent ointment of ammoniated mercury applied in and around the toes after they have been thoroughly dried. The progressing or subacute case does better on a mildly stimulating tar ointment, either a 6 per cent crude coal tar, or a 3 to 5 per cent pine tar. If all signs of acuteness have subsided, then I employ the well known Whitfield ointment, using the 3 per cent salicylic acid and 6 per cent benzoic acid strength. In the chronic stage with either maceration or fissures, the alternate use of a strong stimulating tar and Whitfield's ointment is in order. It is also in this type of case or the carrier stage that the volatile oils and dyes find their greatest usefulness. I use mercuriochrome solution in the mildest types, and a solution of basic carbol-fuchsin (Castellani) for the more resistant case. An alcoholic solution of 4 per cent salicylic acid and 8 per cent of resorcinol applied to the toes, or a foot powder used in the daytime, is helpful in those cases associated with excessive sweating. Cleanliness, dryness and debridement constitute the physical measures necessary, and, in some chronic calloused types, resort must be had to the use of pumice stone or sand paper.

The practical features of control have been elaborated on elsewhere and to a good advantage, so that at the present time practically all student health services have instituted some form of antiparasitic foot baths in which use is made of sodium thiosulphate, hypochlorite solutions or formaldehyde. In addition, gymnasium directors are seeing that the locker floors and runways are scrubbed down with the solution selected. The factors in this regimen include a choice of chemical which in an effective dilution is nonirritating to the feet and which is of sufficient strength to work with some degree of effectiveness within a minute's time. Perhaps it is not so much the direct immersion of the feet that is important as the natural tracking of the solution about the locker room floors. In addition, the foot baths must be strategically located so that it is difficult for the student to avoid their use.

Another important method in control is the effective fumigation of apparatus when necessary. It is well known that boxing gloves constitute a menace in the dissemination of pyogenic infections as well as molluscum contagiosum and the less common ringworm of the face. In some gymnasiums—more often the private ones—paper slippers are used. It has been shown by Dr. Spring that the ordinary chlorination of the swimming pool has no merit in the prevention of the spread, as exposure in the pool of over an hour and a half is without effect.

Prevention or prophylaxis *per se* is not within our scope, as such a large number of infections are found among entering students, but it is our duty to control and minimize its spread. If the work of Osborne and

³ Hulsey, S. H., and Jordan, F. M. Ringworm of the Toes as Found in University Students, *Am. J. M. Sc.* 169: 267 (Feb.) 1925.

Hitchcock⁴ in Buffalo and of Gould⁵ in Albany is taken up in the secondary schools with the popularity that it deserves, there should shortly be a lessened incidence in freshmen, and this must not find physicians unprepared to work toward the reduction of reinfection

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ELECTROGALVANIC LESIONS OF THE ORAL CAVITY PRODUCED BY METALLIC DENTURES

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In a previous communication I¹ discussed lesions of the oral cavity caused by electrogalvanic discharges between dissimilar metallic dentures and reported thirty consecutive cases measured for electric current. Since that time I have been privileged to make a careful study of more than 300 additional cases which contained various dissimilar metallic dentures. From this study, I feel justified in forming certain definite conclusions.

I have confirmed, by repeated experiments, that human saliva, whether acid, alkaline or neutral, makes a good electrolyte through which metallic electrons freely circulate from a higher to a lower electropotentiality. Thus within every oral cavity which contains dentures such as plates, bridges, crowns, or fillings of dissimilar elemental consistency, there is constituted a complete galvanic battery.

This newly discovered oral cavity phenomenon is in keeping with a fundamental law of electrophysics discovered by Galvani in 1786—later verified by Volta—which declares that when dissimilar metals (electrodes) are brought into association through a suitable liquid medium (electrolyte), there takes place a disturbance in their equilibrium and a disassociation of their elemental electrons. The electrons of a higher or electropositive position in the electromotor series of metals flow toward and replace or repose on those of a lower or electronegative position. This exchange of electrons between metallic dentures within the oral cavity is a continuous process and after a time may become manifest by both objective and subjective symptoms.

SYMPTOMS OBJECTIVE AND SUBJECTIVE

Objective electrochemical changes that take place in metallic dentures consist of discoloration, areas of erosion, disintegration or perhaps a loosening of fillings or crowns and a possible maladjustment of plate dentures.

Objective symptoms of the oral tissues consists of acute or chronic inflammatory, blanched or grayish patches, erosions or ulcers. After a time, leukoplakia may appear on the gingival or buccal membranes beneath adjacent to or surrounding the metallic dentures. Many times erosions, ulcers or leukoplakia occur directly beneath or beside the offending denture and the cause is so obvious as to be rightly designated

"galvanic burns."² An occasional case of metallic pigmentation of the mucous membranes has been observed.

Subjective symptoms consist of an intermittent astringent, metallic or salty taste and a burning or stinging sensation of the margins, the end or sometimes the base of the tongue. Many patients complain of a dryness or tickling sensation in the throat. Approximately 80 per cent of the patients have an increased salivary secretion. Such symptoms are more perceptible in the early morning after the mouth has been closed for a long period and the stomach has become relatively empty.

When two dissimilar metal dentures happen to come in contact, there frequently occurs a nerve soreness or an occasional electric shock. Dentists have for many years recognized this possibility and have made a practice of grinding short one of the metallic contacts.

Dental cements that contain a high percentage of zinc are electropositive to gold and capable of causing trouble, likewise there is an electric current between dissimilar amalgams.

Very few of the subjective symptoms are continuous and may, after a time, like the taste of a new drinking water, become gradually tolerated. However, some patients progressively become nervous, suffer with stomatitis, indigestion and loss of weight, and perhaps eventually may develop symptoms of general debility. They often pass from one dentist or physician to another seeking relief.

Cases in which a full upper or lower denture made of aluminum or zinc is worn in association with another containing clamps or structures of gold, or metals of radically different electropotentiality, present the most striking and serious disorders. Such radically incompatible dentures may eventually produce pathogenic changes in the blood and kidneys and cause hyperplasia and leukoplakia of the soft tissue, which may finally become malignant.

Such pathologic changes produced by the electrogalvanic current may be, on casual inspection, indistinguishable from lesions produced by infections, tobacco, or traumatic injuries from rough teeth or dentures. Anemias, syphilis, lichen planus, lupus and other diseases—likewise, drug eruptions—which frequently occur on the oral tissues must first be eliminated before a positive diagnosis of electrogalvanic phenomena is made. The excessive use of tobacco, acid foods, or the presence of bacterial infections perhaps in certain cases serves to augment electrogalvanic injuries.

FACTORS INFLUENCING ELECTRIC CURRENT

The intensity of the electric current and its potential dangers depend on many factors:

1. Total surface or volume of the dissimilar metals.
2. Chemical variation of the saliva. Hyperacidity or hyperalkalinity perceptibly increases the amount of current generated.
3. Resistance of tissues and distance between dentures. Tissue resistance is lowered and sensitivity increased in the presence of infection, also the distance between dentures apparently tends to increase rather than decrease the electric units. Such seeming contradiction of a fundamental law of electricity is probably due to a less rapid drawing or exhaustion of current between dentures that are more widely separated.
4. Duration, that is, time since the restoration of the first and the subsequent dissimilar dentures. Acuteness

² Hollander, Lester. Galvanic Burns of the Oral Mucosa. J. A. M. A. 59: 5335-7 (July 30) 1932.

⁴ Osborne, F. D. and Hitchcock, Blanche S. Prophylaxis of Kingworm of the Feet. J. A. M. A. 97: 453 (Aug. 15) 1931.

⁵ Gould, W. L. Kingworm of the Feet. J. A. M. A. 96: 1300 (April 18) 1911.

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¹ Lain, E. S. Chemical and Electrolytic Lesions of the Mouth (Caused by Artificial Dentures). Arch. Dermat. & Syph. 25: 21-31 (Jan.) 1932.

or chronicity of an irritant may determine the type of lesion present. An electric discharge registering but a few micro-amperes, like the dripping of water on a stone, though at first imperceptible, may eventually produce changes of a gross appearance.

5. Relative position of the metals in the electromotor series. This is the most important factor that determines the intensity of the current. For example, only three positions in the electromotor series separate pure silver and pure gold, therefore, only a few degrees of current are generated by amalgams of a high percentage of silver with that of an associate high percentage of gold. In contrast, there is a difference of nineteen positions between aluminum and gold, and seventeen between zinc and gold, therefore, the association of such dentures produces the most serious injuries of the oral mucosa and the gravest constitutional symptoms.

I have observed two cases in which marked pathologic changes in the mouth and severe constitutional symptoms were present. Each of the patients was wearing a full upper denture made of aluminum with a lower denture made of gold, between which there was a current flow of from 80 to 100 micro-amperes.

TABLE 1—Metals in Electromotive Force Series³

Positive End	Negative End
Cesium	Cobalt
Rubidium	Nickel
Potassium	Tin
Sodium	Lead
Lithium	Hydrogen 0.000
Berium	Copper
Strontium	Arsenic
Calcium	Bismuth
Magnesium	Antimony
Aluminum	Mercury
Manganese	Silver
Zinc	Palladium
Chromium	Platinum
Cadmium	Gold
Iron	

METALLIC DENTURE MATERIAL

Restorative amalgams consist of three or more of the following metals: silver, tin, zinc, copper, and sometimes gold or platinum, to which is added mercury to produce the amalgamation. One popular brand of amalgam is advertised by its manufacturer as containing silver, 67 per cent, tin, 29 per cent, copper 3.5 per cent, and zinc, 0.5 per cent.

Gold denture material is alloyed with one or more of the following metals: copper, nickel, silver or platinum. Gold used for crown and bridge work varies from 75 to 91 per cent pure, to which has been added from 8 to 15 per cent of copper to give hardness, and a small percentage of silver, nickel or platinum to give color and strength.

MEASURING THE CURRENT

During my measurements of electric currents in the oral cavity, I have tried various instruments, though I have found the Weston direct current micro-ammeter number 320 the most reliable and convenient. Connecting cords consist of flexible number 18 copper-corded wires covered with heavy soft rubber. Contact electrodes consist of angular hard rubber handles through which run solid copper wires pointed at contact ends.

Measurements should first be made with the mouth open. The contact points are cleansed with 70 per cent alcohol. The electrode connecting with the positive

side of the micro-ammeter is placed in contact with the gold or with that denture which belongs to the negative side of the electromotor series of metals. The electrode connecting with the negative side of the meter is placed in contact with the other denture which is in a higher position or positive side of the electromotor series. The meter needle at once ascends to its highest reading and then slowly returns to a level at which it stands for a short period. With the mouth open the dentures soon become dry, polarization of electrode points occurs, the density of the electrolyte is reduced, and current is withdrawn from the metals being tested. These factors cause a slowly diminishing current until it soon reaches zero.

For scientifically accurate measurements, other factors such as the ohms of resistance, both in the mouth and in the instrument used, must be considered. The resistance of the instrument I have used is 8 ohms. The resistance between dentures in the oral cavity varies from 10 to 30 ohms.

The millivoltage or unit of pressure may be approximately calculated by multiplying the micro-amperage registered by the sum of the ohms of resistance in the instrument and in the mouth.

Millivoltage may be accurately measured by a special type of galvanometer so designed as to draw an imperceptible amount of current from the metals tested.

REVIEW OF LITERATURE

Lippmann⁴ of Hamburg has reported two very striking cases: one patient had been wearing a plate denture made of zinc, the other, a plate made of Randolph metal. Each had suffered severely with both local and general symptoms of metallic toxemia. They both made a complete recovery when the dentures were removed and like metallic dentures were substituted. These cases were more fully reported in my previous paper¹.

Hollander² has reported three cases which he diagnosed as electrogalvanic burns of the oral mucosa. In each the common symptom of metallic taste and general discomfort in the mouth were present. One case was made worse by the taking of hydrochloric acid. Two patients had painful ulcers in the mouth which resembled aphthous stomatitis. The symptoms in one of the patients just mentioned became worse just before menstruation, one had whitish-gray patches adjacent to and opposite a large gold bridge. Routine laboratory tests were negative. The removal of an offending denture in each case gave complete relief. In one case a recurrence of the trouble occurred immediately on replacement of the original denture.

Karl Ullmann⁵ of Vienna, at a meeting of the Vienna Medical Association, April 15, 1932, gave a general discussion of lesions of the oral cavity. He applied his remarks to lesions caused by the electrogalvanic current, relating the history and symptoms in nine cases. As proof of his diagnosis, complete recovery occurred in each after removal of the dissimilar and the replacing with uniform metallic dentures. A brief abstract of his address follows:

I shall make a report concerning a new form of leukoplakia which has not hitherto been described. I wish to designate this condition as leukoplakia galvanica or electrogalvanica.

⁴ Lippmann, A. Disorders Caused by Electric Discharges in the Mouth in Artificial Dentures, *Deutsche med. Wchnschr.* 56: 1394 (Aug. 15) 1930.

⁵ Ullmann, Karl. Leukoplakia Caused by Electrogalvanic Current Generated in Oral Cavity, *abst., Wien Klin. Wchnschr.* 45: 840 (July 1) 1932.

³ Hodgen, J. D. *Practical Dental Metallurgy*, ed. 7, St. Louis, C. V. Mosby Company, p. 49.

Such lesions arise on various portions of the mucous membrane of the oral cavity, as I shall herein show by illustrations. They appear on the tip, edges and dorsum of the tongue, or they may occur on the muscles of the mouth, the tonsils, the gums and the soft palate as white to grayish, smooth and sometimes raw plaques, also, I have seen two cases of striplike abnormal pigmentation of the gingival or buccal surface. They are localized areas, in most cases unequally distributed. Biopsy shows no deviation from the normal tissue except increased cellular formation and hyperkeratosis, while between the individual cells are formed also normal cells of an inflammatory nature with eleidin content.

This leukoplakia is invariably accompanied by subjective symptoms such as metallic taste, especially during morning hours when the stomach is relatively empty, a loss of appetite, an indefinite, peculiar, burning sensation, and, finally, inflammation and erosive patches in strandlike formations.

He further remarks

I have frequently observed such inflammatory changes in the oral cavity and was unable to explain them until I read the explanation given by Lain of Oklahoma, in the January, 1932, issue of the *Archives of Dermatology and Syphilology* in which Lain describes the interdependence of stomatitis and leukoplakia and the physiochemical processes involving the cause of such condition.

Dr. Ullmann further declared that he had proved by micro-ammeter tests made of dissimilar metals in the mouth that electrogalvanic currents do exist and that he had verified his diagnosis and the etiology of such by differentiating laboratory tests, including removal and replacement of the dentures. Without other treatment he then observed a disappearance of both the erosions and the leukoplakia.

Dr. Ruth Friedlaender⁶ of the Post-Graduate Dental School, University of Hamburg, during research on her graduate thesis, examined and made records of a total of seventy-six patients whose mouths contained dissimilar metal dentures. In six cases of this series she was able to control absolutely the electrogalvanic phenomena, in the positive cases by the removal and replacing of the offending dentures. Her statistical summary revealed that 56.6 per cent gave positive symptoms of various electrolytic processes and disorders. 39.3 per cent showed no such evidence at the time of examination, 3.9 remained questionable cases of mechanical rather than electrolytic effects.

REPORT OF CASES

The following reports of cases were selected from my file of more than 300 cases, to illustrate the more common objective and subjective symptoms.

CASE 1—Mrs. C., aged 32, had two large amalgam restorations in the lower right side of the jaw with no discomfort until after a large gold filling was placed in an upper right tooth opposite the amalgams. Immediately after, she began to suffer with electric nerve shocks when the upper gold and lower amalgam came in contact with each other. The shock at times was so severe as to cause her to cry out with pain. Her dentist ground short the gold denture, but contact on mastication still caused shock. Examination showed tender inflammatory patches on the buccal surface exactly opposite the restorations. Measurements registered 38 micro-amperes. Saliva was 2 plus alkaline. After removal of the amalgams and restorations of similar gold the nerve shocks ceased, the mucous patches healed, nervousness was allayed and general improvement in health followed.

CASE 2—Mrs. H., aged 43, had two amalgam fillings in the lower left side of the jaw for many years with no trouble.

Two years ago she had a gold bridge placed in the upper left jaw and three gold restorations in the right lower jaw. She immediately noticed a metallic taste and increased salivary flow. Later, the tongue felt irritated and became eroded on the right side. She became nervous and suffered from indigestion, loss of sleep and weight. Examination revealed inflammatory patches over the buccal, palatal and gingival surfaces. Measurements between dentures registered 18 micro-amperes. Saliva was 1 plus acid. Removal of the amalgam fillings gave partial relief. Removal of all the gold gave complete relief. Later, she had gold restorations testing approximately the same electropotentiality and has since enjoyed perfect health.

CASE 3—Mrs. J., aged 38, had several amalgam fillings in lower left molars for many years without trouble. Within a few days after the installation of a gold bridge in the upper jaw she began to have a peculiar mineral taste, with irritated margins of the tongue, and salivation. She occasionally experienced electric nerve shocks when the upper and lower

TABLE 2—Summary of Three Hundred Consecutive Cases in which Oral Cavities Contained Dissimilar Metallic Dentures

	Per Cent
Males	40
Females	60
Those having objective or subjective symptoms	71.3
Those with no symptoms	28.7
Taste (metallic or salty)	71.3
Increased salivary flow	67.0
Tongue irritation (burning, erosions, ulcers)	41.0
Mucous membrane lesions (inflammatory patches, erosions, ulcers)	33.0
Nerve shocks	23.5
Leukoplakia (adjacent or intervening between dentures)	21.0
Acid reaction of saliva	46.6
Alkaline reaction of saliva	28.5
Neutral reaction of saliva	24.9
Average micro amperage	
Initial flow	19.0
Steady flow	6.6

TABLE 3—Experiments Outside the Oral Cavity with Gold and Amalgam Dentures Popular Brands, of Approximately the Same Surface Area

Experiment 1 (With Buffered Solution)	Micro-Amperage	
	Initial	Steady
pH 5.2 (acid)	210	140
pH 7.2 (alkaline)	200	135
pH 7.0 (neutral)	170	110

fillings made contact. One of the fillings was ground short, reducing the nerve shock, although the tooth continued to cause discomfort. A roentgenogram of this tooth was negative. Measurements of the dissimilar dentures registered 50 micro-amperes of initial current. The saliva was 2 plus alkaline. Removal of the amalgams gave relief. Restorations with gold were made which tested the same electropotentiality, and she experienced no further trouble.

CASE 4—Mr. H., aged 50, had been wearing for five years an upper plate made of aluminum and vulcanite with a setting of two gold crowns. He felt no discomfort until soon after the extraction of several lower teeth and the substitution of a partial vulcanite and gold denture. He immediately noticed a metallic taste, increased salivation, burning tongue and inflammatory patches and erosions over the hard palate. All symptoms grew worse until there were observed horny proliferating growths over the hard palate resembling early cancer. He obtained partial relief at night by removal of the upper plate. Soon after the lower denture was made, there occurred multiple pitlike disintegrated areas over the basal surface of the aluminum plate. This phenomenon was also observed around the gold crowns. He tested 92 micro-amperes. Saliva was 2 plus acid. After the aluminum had been discarded and a replacement with uniform dentures had been made the growths slowly disappeared, he became free of all subjective symptoms and his general health improved.

⁶ Friedlaender, Ruth. Electrolytic Manifestations in the Oral Cavity in the Presence of Two or More Metals. *Zahn. Abw.* Aug. 15, 1932.

CASE 5—Mrs. H., age 60, had a gold bridge on the lower right side, which she had worn with comfort. She recently had a restoration with a gold inlay and gold crowns on the left side. At once she began to experience a peculiar taste, salivation and irritated margins of the tongue. Later the margins of her tongue became eroded, she became nervous, had indigestion, and began to lose sleep and weight. Examination showed also an enlargement of the circumvallate papillae at the base of the tongue and a marked discoloration of one of the gold dentures. This was polished and local treatment was instituted with only a slight improvement. Saliva was 2 plus acid. Measurements between the gold dentures gave a reading of 18 micro-amperes. Removal of all dentures was soon followed by complete relief of subjective symptoms and healing of erosions. Later, gold dentures testing approximately the same micro-ampere in buffered acid solution were placed in the mouth. Her general health improved and marked gain in weight was recorded.

SUMMARY AND CONCLUSIONS

1 A study has been made of more than 300 oral cavities which contained dissimilar metallic dentures, 71 per cent of which showed some evidence of electrogalvanic phenomena.

2 The human saliva is a good electrolyte and dissimilar metallic dentures constitute the necessary electrodes, therefore, within every oral cavity containing dissimilar metallic dentures there is a complete galvanic battery.

3 The intensity of the current and the pathologic changes produced depend on many physical and electrochemical factors. The most important is the relative position of the dissimilar metallic dentures in the electromotor series.

4 The most common objective and subjective symptoms produced are metallic taste, salivation, mucous patches, erosions, leukoplakia, nerve shocks, burning tongue, indigestion and nervous irritability. Each of these symptoms may be more or less intermittent.

5 Positive cases of electrogalvanic injuries are promptly relieved by removal of the offending dentures and restorations with dentures that are of uniform electropotentiality.

6 A recent survey of 150 consecutive cases in which dentures had been changed since the first examination revealed that 56.1 per cent resulted in complete relief, 32.8 per cent in only partial relief, and 11.1 per cent in no apparent relief since the change. Of the patients having only partial or no relief, several have been reexamined and found to have dentures still of unlike electropotentiality.

7 In order that the electrogalvanic phenomenon with its serious pathologic changes in the oral cavity may be avoided, manufacturing dental laboratories should endeavor to offer to the profession satisfactory denture materials that are of the same electropotentiality.

Medical Arts Building

SPINAL FLUID CELL COUNT AND ENCAPSULATION OF BRAIN ABSCESS

AN ATTEMPT TO CORRELATE THESE FACTORS, AND TO DETERMINE THE OPTIMAL TIME FOR DRAINAGE

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In every case of abscess of the brain a twofold responsibility is thrown on physicians. First, the condition must be recognized, if possible when it exists, mistakes are brought home at necropsy and one learns to do better. Second, the right thing must be done at the right time, this is much more difficult, of blunders one is often unaware, and unwittingly they are laid to the will of God. In a valuable paper on this subject, Grant¹ stated "Drainage of a brain abscess before

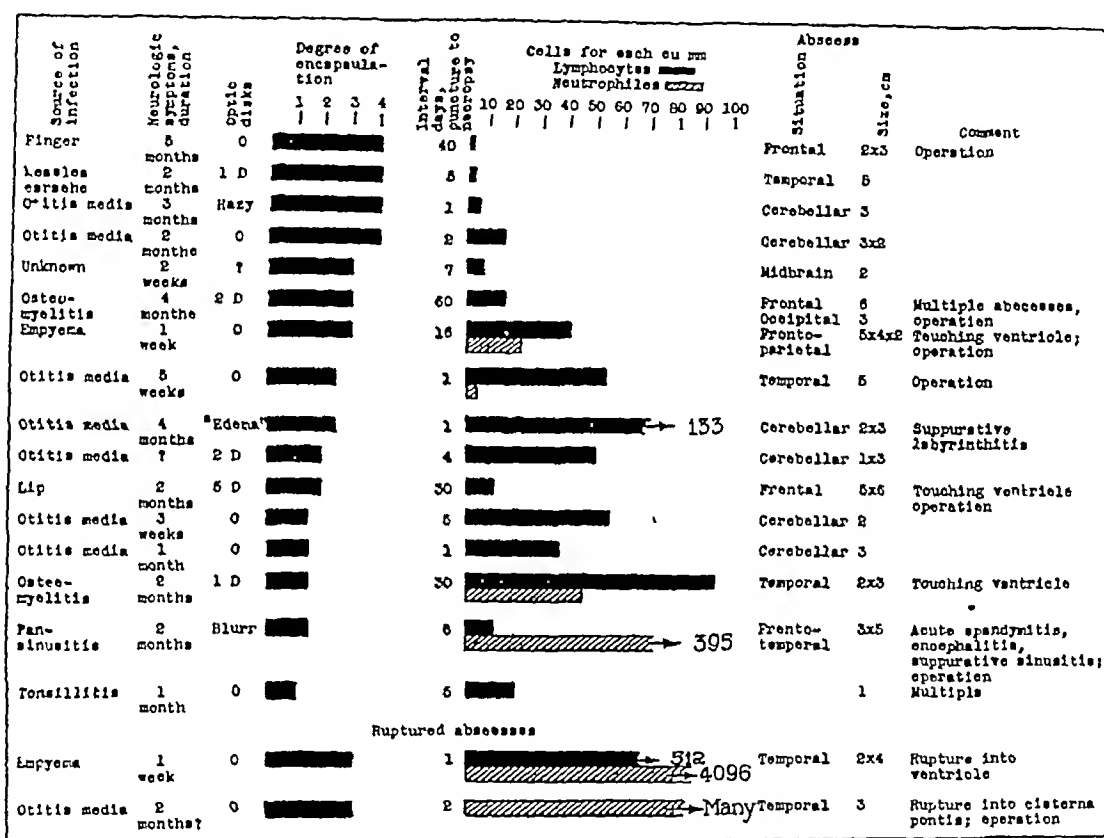


Chart 1.—Degree of encapsulation and cell count of spinal fluid series with necropsy (eighteen cases)

encapsulation has occurred has been uniformly disastrous in our experience. Only two patients died because operation was delayed too long."

I should like to dwell briefly on this question of the optimal time for drainage of an abscess of the brain, which was called to my attention by Adson² and by Lillie,³ and to raise the question whether the cell count of the spinal fluid may help in directing the course one should pursue.

Until recently the practice has been to operate as soon as a diagnosis of abscess has been made. It might be well to examine this dictum in the light of the pathologic processes that come into play. Macewen⁴ and other investigators well described the development of an

From the Section on Neurology, the Mayo Clinic.
1 Grant F. C. The Mortality from Abscess of the Brain, J. A. M. A. 13: 550-556 (Aug.) 1932.
2 Adson A. W. Personal communication to the author.
3 Lillie, W. I. The Clinical Significance of Choked Disks Produced by Abscess of the Brain Surg. Gynec. & Obst. 47: 405-406 (Sept.) 1928.
4 Macewen William Pyogenic Infective Diseases of the Brain and Spinal Cord New York, Macmillan Company, 1893.

abscess, and Lund,⁵ particularly, has dealt with these changes as reflected in the spinal fluid. The typical course of the commonest variety of surgical abscess, the otogenous variety, may serve as an illustration. Invasion of the nervous system is usually marked by abrupt onset of signs indicating meningeal irritation, a shower of neutrophilic cells in the spinal fluid accompanies this. If the date of this occurrence can be determined, it is helpful indeed. Such a history may be lacking when the subarachnoid space has escaped more general invasion. Then follows invasion of the brain itself, and encephalitis, or cerebritis, results. While this is going on the cells in the spinal fluid diminish in number, and the neutrophils are superseded relatively by lymphocytes.

The progress of encephalitis varies greatly in tempo and in extent. The process of defense generally begins at once, and a barrier of lymphocytes, connective tissue and glial cells is built up, thus starting the process of encapsulation. At this time a diagnosis of abscess is often made and operation instituted. The needling results in dissemination of the infection, and the post-operative course is usually stormy. The immediate indication requires courage and is the hardest step to carry out, it is to wait. In doing so, liquefaction and relative sterilization of the contents take place, a better capsule is formed, and immunity is added to the defense of the patient, which he will need later. But if one waits too long, the abscess may extend anew or rupture, or the patient may suddenly die of respiratory failure. Between these two extremes lies the best time for drainage.

The means for determining this optimal time are limited. It is seldom as early as two weeks, and often as late as six weeks after the period of invasion. If the optic disks are choked, a valuable source of help is at hand. The safest time for drainage, as Lillie has observed, is when choking has attained its maximal degree and the disks have become quiescent. Often however, and this varies greatly with the source and the site of the abscess, choking does not occur and one must look elsewhere for help.

This may be found in examination of the spinal fluid. Study of the cells is apparently the most fruitful source of information. Unfortunately, spinal punctures were made in only 36 of 161 cases in which the diagnosis of abscess of the brain was verified. This series is too small and the data obtained are not entirely convincing. That so few punctures were made was largely due to the fear that puncture might lead to rupture of the abscess. I am convinced that this danger has been overrated and I have twice witnessed rupture of a ventricle into an abscess cavity at the time of drainage when the pressure of the cerebrospinal fluid on the

opposite side of the wall alone could account for it. Gardner⁶ has expressed a similar view, he does not hesitate to perform spinal punctures or to make encephalograms if abscess of the brain is suspected.

In chart 1, the cell counts of the spinal fluid have been tabulated parallel with the degree of encapsulation, as determined by a study of the gross specimens and the microscopic preparations. The cases are arranged according to the completeness, thickness and toughness of the capsule, graded on a basis of 1 to 4. A glance at the chart as a whole reveals that the better the encapsulation, the smaller the number of cells in the spinal fluid. It will also be noted that, in three cases in which the wall of the abscess impinged on the ventricle, the cell counts in two were rather high and the neutrophils well represented. In another case the neutrophils far outnumbered the lymphocytes, the cell counts being respectively 395 and 8. The neurologic complication had begun two months previously. At operation 2 ounces (60 cc) of pus was drained from the abscess cavity. The patient did not improve as it was hoped she might. At necropsy it was found that the capsule

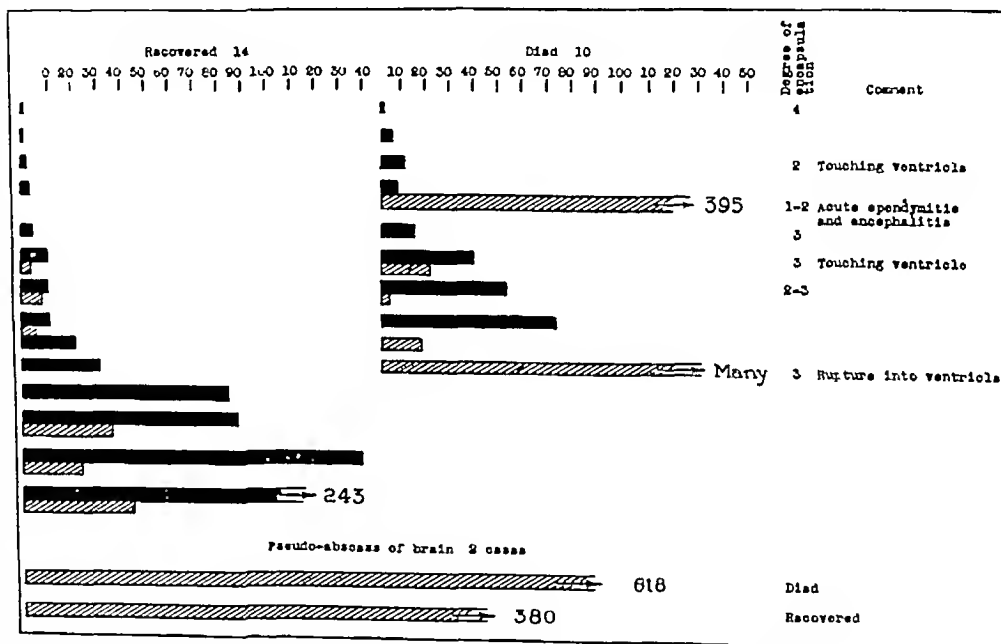


Chart 2—Cells for each cubic millimeter of spinal fluid surgical series solid areas lymphocytes shaded areas neutrophils

of the abscess was poorly formed and that there was coexisting acute ependymitis and encephalitis, operation would not have helped at any time.

In two cases, listed separately, the abscesses had ruptured, but in one of these there had been no hint of rupture, and since abscess still dominated the clinical picture, this patient was referred for operation. The inference is that when neutrophils exceed lymphocytes in the spinal fluid, too much must not be expected from surgical intervention.

The mere presence of neutrophils, however, does not preclude a favorable outcome, this is illustrated in the left hand column of chart 2. The reader should not be led to infer that the appearance of fatal and nonfatal cases on the same chart in the surgical series represents the surgical mortality. The cases that ended fatally usually presented greater difficulties in diagnosis, so that a proportionately greater number of punctures was made in these.

⁵ Lund, H. *Acta Otolaryng.* 11: 479-522, 1927.

⁶ Gardner, W. J. Personal communication to the author.

Two cases of so-called pseudo-abscess are included in chart 2. Here there was a clinical picture of abscess, pathologically there was at least a partial capsule but there was no liquefaction, obviously operation was not required. These, as may be seen, had high neutrophilic cell counts.

COMMENT AND SUMMARY

Abscess of the brain presents a highly varied clinical panorama that cannot be reduced to a simple formula. Each case is a law unto itself. The problem calls not only for a diagnosis but also for decision as to when the abscess shall be drained. Awaiting the optimal time means a better capsule and a liquefied interior, and consequently better drainage, it means less virulent organisms and greater immunity, and hence less danger to the patient.

The risk of performing spinal puncture in cases of abscess has probably been overrated, and thus physicians have been deprived of information that might be helpful.

After invasion of the brain has taken place and the formation of an abscess gets under way, the number of neutrophils in the spinal fluid becomes absolutely and relatively reduced.

The persistence or reappearance of neutrophils suggests that encapsulation is not progressing favorably.

An appreciable number of neutrophils may indicate extension of the abscess or close proximity of the abscess to the ventricle.

A predominance of neutrophils in the spinal fluid was seen in cases in which operation was performed unnecessarily or which ended fatally.

A small number of lymphocytes would seem, on the whole, to indicate better encapsulation, greater resistance, and a smoother convalescence after operation.

PERSISTENT DERMATITIS

AN UNUSUAL SEQUELA OF RADICAL OPERATION FOR TRIGEMINAL NEURALGIA

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Modern neurologic surgery has decreased to a negligible factor the mortality following radical operations for major trigeminal neuralgia. Improvement in the technic of operative approach has decreased the complications and undesirable sequelae so materially that a person suffering from this distressing condition need have no hesitation in submitting to this operation. However, for the past two years I have observed a patient who developed an unusual condition following operation on the gasserian ganglion.

REPORT OF CASE

A married woman, aged 41, came to the clinic, March 13, 1930, because of a pain and a burning sensation on the left side of her face. She was from a family of ten children, two of whom had died from epilepsy. Otherwise there was nothing of significant interest in the family history. She had had measles, mumps, scarlet fever, whooping cough, tonsillitis and influenza. She gave a history of having had attacks of urticaria and at times had developed a mild, flexoral eczema. She had been married eighteen years and had two children.

The pain of which the patient complained was noticed first in December, 1925. A hot, jagging sensation occurred in

paroxysms lasting from a few seconds to a minute, and during the intervals the patient was free from pain. The pain was on the left side only, involving the upper lip, corner of the mouth, molar region, forehead and anterior portion of the scalp. Talking, chewing and sudden movements of the head and face precipitated the attacks. Definite trigger points were present on the upper lip and lower eyelid. The attacks occurred many times a day. Several teeth had been extracted and an operation on the left maxillary sinus had been performed, however her condition had become progressively worse. A diagnosis of major trigeminal neuralgia was made by Dr. W. J. Gardner of the neurosurgical division.

March 14, a subtotal resection (Frazier's method) of the sensory root on the left fifth cranial nerve was performed by Dr. Gardner. The motor root was left intact, but a few fibers of the third division were sectioned. Complete avulsion was done in the first and second divisions. The patient's postoperative course was uneventful. She was completely relieved of pain but complained of numbness. There was no keratitis or other eye complication. She remained in good health until March, 1931, at which time a red spot appeared on the left side of her forehead. This erythematous plaque gradually enlarged until it involved the left side of the forehead, the left temple region, the upper left eyelid and the left side of the nose and cheek. The lower eyelid and adjacent skin remained clear. The skin near the left corner of the mouth also became involved. There was a very sharp demarcation of the margin of the plaque in the midportion of the face but this was less marked elsewhere. At no time were there any subjective symptoms or infiltration of the skin. The plaque had the clinical appearance of simple dermatitis except for the sharply defined central demarcation.

Examination revealed hypesthesia in the areas supplied by the first and third divisions of the left fifth cranial nerve and anesthesia to pin prick over the second division. The left corneal reflex was absent and the sensation to pain was lacking in the conjunctiva of the left eye.

The eruption would almost disappear or become inconspicuous for four or five days at a time. Exposure to heat, cold, wind, soap and water made the condition very noticeable. At times the plaque became very red and weeping. As the acute reaction subsided, a small, dry, adherent scale developed. Vesicles never were observed. Thermocouple readings showed no difference in the surface temperatures of the normal skin of the right side of the forehead and of the involved area on the left side. Unfortunately, a biopsy was not obtained. Various local applications failed to give relief. When the patient was observed in April, 1932, there had been no material change in her condition. There had been no dermatitis nor skin eruption on the right side of the face.

COMMENT

A search through the cumulative index and a review of some of the writings of prominent neurologic surgeons revealed that cases similar to the one here described are extremely rare.

In 1925, Becker¹ gave a good review of the literature and discussed the theories of the etiology of trophoneuroses following nerve injury. He also reported a case observed at the Mayo Clinic which was practically identical with the case described here. A woman, aged 47, had an eczematoid dermatitis on the right side of the face, three weeks after section of the posterior root of the right trigeminal nerve. At no time did the lesion appear to be herpetic. Previous injections of osmic acid and alcohol had not been followed by a similar sequela. There was complete anesthesia of the areas involved. Various topical applications failed to give permanent relief.

Herrick² recently reported a case of eczematoid dermatitis which developed on the forehead near a scar

¹ Becker, S. W. Dermatitis in Association with Disease or Injury of the Peripheral Nerves. *Arch. Dermat. & Syph.* 12: 235-241 (Aug.) 1925.

² Herrick, Ruth. Dermatitis Following Nerve Injury. *Arch. Dermat. & Syph.* 26: 879-881 (Nov.) 1932.

From the Cleveland Clinic.
This case was presented at the Annual Meeting of the Four Cities Dermatological Society in Cleveland, in 1931, but was not reported in the society proceedings.

produced by an injury received in an automobile accident. The eruption was limited to the area supplied by the supra-orbital branch of the fifth nerve. This was considered strong evidence that the eruption was of nervous origin. Various forms of treatment were not beneficial.

In all cases of eczema following nerve injury which Bruck³ reviewed, the eruption developed on the side of the injury. The case which he reported differed in that the dermatitis was limited to the side of the body opposite to the injury. His patient was a man, aged 38, who was shot in the face during the war. The bullet penetrated beneath the left zygomatic arch and remained lodged in front of the right auditory canal beneath the skin, being removed later by an operation. The right facial and trigeminal nerves were paralyzed. Eight weeks later a papulovesicular dermatitis developed over the entire left side of the face and neck. However, there was not a sharp demarcation of the eruption in the midportion of the face, and the right side of the neck was involved but to a lesser degree than the left side. Treatment gave only a temporary relief.

The vasoconstriction tests with cutaneous application of epinephrine, as in the Pirquet reaction, gave a completely negative reaction on the right side of the face, while the anemic focus appeared distinctly on the left side. There was a vasomotor response to scratching on the left side of the face, but this was absent on the right. Only the areas with disturbed vasomotor irritability due to nerve injury were spared. Bruck expressed the opinion that such observations support Krehlich's theory of the neurotic origin of eczema and advised that dermatologists keep in mind the necessity for observing more closely the relationship between nerve damage and eczema.

Adson⁴ reviewed 839 cases of trigeminal neuralgia examined and treated at the Mayo Clinic. Operation was performed in 587 cases. He mentioned paresthesia, keratitis, iritis, conjunctivitis and ocular palsy as the most frequent complications. He did not include herpes or a condition similar to that in the case just reported. Frazier's⁵ observations are similar to those of Adson, but he stated that an herpetic eruption on the face and buccal cavity, usually involving the distribution of the maxillary division, may appear on the second or third day following operation for major trigeminal neuralgia. He has pointed out that, by conserving the ophthalmic division of the fifth cranial nerve in the operative treatment of trigeminal neuralgia, trophic keratitis has ceased to be a troublesome sequela.

The experience of the neurosurgical division of the Cleveland Clinic in cases of trigeminal neuralgia was reviewed by Locke⁶. He did not mention any such trophic disturbance of the skin. Cushing⁷ has

observed cases in which herpes followed operation for trigeminal neuralgia. The lesions appeared on the lips and nose on the side of the operation. In other publications on trigeminal neuralgia he has not mentioned sequelae similar to those seen in the patient here described.

Peet⁸ reported two cases of postherpetic trigeminal neuralgia, one of which was somewhat similar in that the skin over the right forehead, cheek and nose was reddened, dry and scaly, with many white scars, one year following the herpes. At operation the right gasserian ganglion was pinker than normal and the sensory root was similar in color to normal muscle. An operation gave little relief of the pain, and no statement was made concerning the subsequent changes in the condition of the skin.

Since in the case I have described the eruption did not appear until one year following the operative procedure, some doubt may be raised as to the accuracy of ascribing this as the cause of the complication. However, even though there was no evidence of keratitis it has been impossible to account for this skin eruption except on the basis of some neurotrophic disturbance. The striking feature of the eruption was its limitation mainly to the area involved in the avulsion of the second and first divisions. This, and the absence of characteristics of any of the more common dermatoses, seems to justify the conclusion that the eruption was related to the operation.

Clinically, the appearance of the eruption was that of a permanent flush with periodic exacerbations of an exudative inflammation. These exacerbations frequently followed exposure to heat, cold, wind, and the use of soap and water and, as would be expected, were not accompanied by subjective symptoms. The patient was observed several times over a period of one year and at no time was there any involvement of the right side of the face. Likewise there were no vesicles suggestive of herpes. The sharply demarcated margin in the central portion of the forehead and on the nose did not change. Factitious dermatitis, lupus erythematosus, seborrheic dermatitis or dermatitis venenata could be eliminated easily in the differential diagnosis. The absence of infiltration as well as the clinical course would seem to eliminate the possibility of any of the granulomas, and the exact limitation of the eruption to the areas supplied by the sensory divisions would rule out the diagnosis of a drug eruption such as is sometimes produced by phenolphthalein. The condition did not subside, leaving a residual pigmentation as is characteristic of phenolphthalein dermatitis.

The patient had had attacks of urticaria and mild attacks of flexoral eczema, which antedated the operation for trigeminal neuralgia. Lack of cooperation prevented our complete investigation of this phase of her condition, but the nature of the lesion and its limitation made it seem unlikely that the dermatitis was the manifestation of an allergic state.

A biopsy was not obtained. This request was not pressed because the patient was somewhat vindictive and refused to have any more operative procedures.

The patient threatened to file a suit for malpractice on account of the development of the dermatitis following the operation on the trigeminal nerve. This threat was not carried out, but it does suggest the possibility that such cases in addition to their unusual

³ Bruck C. Nerve Injuries and Eczema. A Clinical Contribution to Eczema Pathogenesis. *Dermat. Ztschr.* 55: 7 (Dec.) 1929.

⁴ Adson A. W. Diagnosis and Surgical Treatment of Trigeminal Neuralgia. *Ann. Otol. Rhin. & Laryng.* 35: 601-631 (Sept.) 1926.

⁵ Frazier C. H. Trigeminal Neuralgia. Fourteen Years Experience with Fractional Section of the Sensory Root as the Major Operation. *J. A. M. A.* 89: 1742-1744 (Nov. 19) 1927. Frazier C. H. and Gardner W. J. The Radical Operation for the Relief of Trigeminal Neuralgia. *Surg. Gynec. & Obst.* 17: 73-77 (July) 1928. Frazier C. H. Radical Operation for Major Trigeminal Neuralgia. *J. A. M. A.* 96: 913-916 (March 11) 1931. Operation for the Radical Cure of Trigeminal Neuralgia. Analysis of Five Hundred Cases. *Tr. Am. Surg. A.* 46: 218-231 1928.

⁶ Locke C. F. Jr. The Diagnosis and Surgical Treatment of Tic Douloureux. *Ohio State M. J.* 26: 213-216 1930.

⁷ Cushing, Harvey. Tumors of the Nervous Acousticus and the Syndrome of the Cerebellopontile Angle. Philadelphia W. B. Saunders Company 1917. 1-16. The Major Trigeminal Neuralgias and Their Surgical Treatment Based on Experience with Three Hundred and Twenty Two Cases. *Ann. Surg.* 160: 157-183 (Aug.) 1920. The Surgical Aspect of Major Neuralgia of the Trigeminal Nerve. *J. A. M. A.* 44: 1 (March 11) 1925 (March 18) 9-10 (March 25) 10-12 (April 1) 10-11 (April 8) 1925.

⁸ Peet M. M. Postherpetic Trigeminal Neuralgia. Persistence of Pain After Section of the Sensory Root of the Gasserian Ganglion. *J. A. M. A.* 92: 1503-1505 (May 4) 1929.

clinical interest, might have some medicolegal significance. The reporting of such instances, and the more general recognition that such phenomena may appear following nerve destruction or injury, places the medical profession in a position to defend itself in such a circumstance.

RENAL RICKETS

REPORT OF CASE

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L. M. S., a girl, aged 11 years, came under observation in November, 1917, for frequent urination and retarded growth. The birth of the patient was uncomplicated but the first year of life was rendered difficult by malnutrition, so that her body weight remained nearly stationary. At the age of 4, she began to have severe pains in the bladder and urinary cultures showed a colon bacillum. At the age of 10, she had an acute pyelonephritis, following which the urine remained persistently cloudy. She made no complaint of any special pain. She had never weighed more than 50 pounds (23 Kg.) and had grown slowly. She got up a number of times at night to urinate. She played with other children and apparently was of normal intelligence for her age.



Distention of ureters

Previous illnesses in the patient's experience, excluding what has been mentioned, were measles at 8 months of age, whooping cough at 11 months, double lobar pneumonia at the age of 8 years, and a single lobar pneumonia at the age of 10.

The family history was without significance.

The urine was cloudy with pus but not offensive. The blood pressure was 100 systolic, 70 diastolic. She was hospitalized

for urologic diagnosis. A cystoscopy under ether anesthesia, Nov. 9, 1917, showed an extreme cystitis of the bladder mucosa, with many folds and much vessel engorgement. Great difficulty was experienced in catheterizing the ureters because of the folds in the mucosa. Both ureteral openings were enlarged and crater-like. They seemed large enough to permit the passage of the tip of the little finger. The bladder and the ureters were injected with thorium showing the ureters to be greatly distended, as observable in the roentgenogram. All urine yielded *Bacillus coli-communis* in pure cultures. Examination of catheterized ureteral urine showed much pus and bacteria in both specimens. The roentgenograms revealed no stone shadows. The bladder was large, the ureters both dilated.

The patient was kept under observation for two years. The urine at all times contained much pus and bacteria. The blood count showed little departure from the average normal. At no time during the progress of the case to its termination was there noted any significant degree of anemia. The first blood count made in 1917 revealed red cells, 4,100,000, leukocytes, 5,400, hemoglobin, 80 per cent. The last count, made on July 5, 1930, revealed red cells, 4,560,000, leukocytes, 9,750, hemoglobin, 80 per cent. The child's physical development was markedly retarded. Her mental development was slow but along normal lines. The catamenia commenced late, were irregular for several years, and then became regular and painless. Breast development and axillary and pubic hair were normal. Her hair and teeth were unusually good. There was

never any sign of dental decay. Knock-knee was first observed at the age of 15. Its development was slow.

In April, 1928, at the age of 22, the patient was again hospitalized. No physical examination had been made by the reporter since 1918, ten years previous. Physical examination on the second admission to the hospital showed a very marked genu valgum causing so much interference that the patient had great difficulty in walking. Her weight was 72 pounds (33 Kg.) and her height 4 feet 4 inches (132 cm.). Roentgen examination of the right knee, elbow, and wrist gave definite evidence of epiphysitis involving the distal epiphysis of the right ulna and radius. There was a good deal of bone absorption, and the diaphyses were fuzzy. There was no evidence of pathologic involvement of the epiphyses of the bones of the right elbow. There was definite pathologic involvement of the epiphyses of the bones of the right knee. The epiphyseal lines were widened, irregular, hazy and rarefied. There seemed to be a widening of the distal third of the diaphysis of the right femur, which might have been due to bone absorption and to the weight bearing of the bone. The same was true of the proximal third of the diaphysis of the right tibia.

Laboratory Data

Date	Urea Nitrogen	Non protein Nitrogen	Uric Acid	Creatinine	Alkali Reserve, Cc	Blood Calcium	Cal Cholesterol	Blood Sugar	Phenol sulphonphthalein Kidney Function Test
4/12/28	50.7	125	0.5	5	33.4			0.94	10%
6/26/28		130		6.8					
11/10/28				5					
3/14/29		59		9.2					
6/21/29		130		6					
7/5/30		88.5		7.6		4.8	250		

The rachitic stigmas consisted of genu valgum, Harrison's groove, and slight changes about the wrist. The patient was found to have a mitral stenosis, well compensated. The urine was cloudy, containing a large number of colon bacilli, and gave forth the characteristic odor of a colon bacilluria.

The phenolsulphonphthalein kidney function test showed an output of 10 per cent in two hours.

The blood yielded urea, 59 mg., nonprotein nitrogen 138 mg., uric acid, 6.5 mg., creatinine, 5 mg.

The patient was very urgent in her request to have some surgical treatment of the knee condition but on the result of the examination this was judged to be clearly impossible. The chemical examination of the blood until the date of her death, which was from uremia in October, 1930, at the age of 24, is shown in the accompanying table.

COMMENT

In the records of this case is revealed the existence of chronic urinary infection, covering almost the entire period of the patient's twenty-four years of life. The effects of this long-standing colon bacillus infection on the bladder and urinary passages was to produce a chronic cystitis, double chronic ureteritis and pyelitis, with great dilatation of those cavities and atrophy of the renal parenchyma, constituting double hydronephrosis with secondary renal sclerosis.

A singular circumstance was that despite the high nitrogen concentration in the blood during the last two years of the patient's life, she had no elevation of blood pressure. At no time did it exceed 120 systolic, 80 diastolic. There was no retinitis or other change in the fundus, very little demonstrable arterial fibrosis and no uremic manifestations occurred until shortly before death.

This case constitutes a typical instance of what has been variously called "renal dwarfism," "renal rickets" and "renal infantilism." This last designation is misleading because cases do not all present the double con-

dition of rickets and sexual infantilism, as is illustrated by the foregoing history

The condition has been known since 1883, when it was first referred to by Lucas, who reported several cases of late rickets associated with albuminuria and stated that he considered the association significant. It has been a well defined clinical entity since 1911, when Fletcher demonstrated the etiologic connection between chronic kidney disease and the bone deformities present. The dwarfism and infantilism that accompany nephrosclerosis in children are not fully understood, but it is surmised that they represent the effects of the nephritis on the metabolic processes of the young growing organism. A moderately careful review of the literature reveals a total of eighty-four cases, only a small minority of these cases being reported in the American medical literature, not more than a dozen in all. Doubtless the reason for this is the lack of awareness on the part of the American medical profession regarding this condition, which has been studied much more intimately abroad, especially in England, the majority of the reported cases being found in English literature. An excellent review and critical analysis of the literature is that of A. Graeme Mitchell.¹

Many of the recorded cases are instances of nephrosclerosis (chronic interstitial nephritis) without obvious urinary infection. A survey of the reports available yields a total of ten cases in which pyuria and dilatation of the urinary passages resulting from chronic infection existed, the urinary infection having evidently led to destructive changes in the kidneys with overgrowth of interstitial tissue. Such chronic infection may develop in the absence of demonstrable obstruction of the urinary tract as well as when it is present.

In Mitchell's collected cases, special mention is made of "genu valgum" in thirty-three instances. This is the most prominent manifestation of rickets present. The average age when genu valgum develops is given as 9 years. The average age of onset of symptoms of thirty patients with renal rickets in which the age is given was 5 years and 2 months. The condition may be present from infancy as the result of congenital cystic kidney. Striking variation from chronic nephritis of similar degree in adult life consists in the absence of elevated blood pressure. An elevated blood pressure is rarely encountered in the literature of this disease in children. The highest blood pressure noted in the case here reported was 120 systolic, 80 diastolic, despite the high grade of azotemia that existed. In twenty-six of Mitchell's collected cases a high grade of nitrogen concentration was found often in extreme degree reaching in the terminal stages to 300 mg or more. The highest concentration appeared to be in infective kidney conditions such as double hydronephrosis.

Necropsy reports are relatively few but when reported the kidneys have shown a typical histologic picture of interstitial nephritis, varying in degree with the size of the kidney.

Mitchell propounds the theory that the kidneys in this disease fail to excrete the waste endogenous phosphorus from the body and that such waste is excreted through the intestinal mucosa instead of from the kidneys, this concentration of phosphorus in the bowel contents may interfere with the absorption of calcium from the food, through the formation of insoluble calcium phosphate thereby leading to rickets from calcium starvation. The value of this hypothesis has yet to be appraised.

SUMMARY

There exists a form of rickets developing in childhood in association with, and apparently as a result of, chronic nephritis. Other causes of persistent renal insufficiency, such as congenital cystic kidney and double hydronephrosis, may effect the same result. Bodily development is markedly retarded and, when the patient survives beyond the age of puberty, sexual infantilism may exist. Chemical studies of the blood reveal an increasing azotemia coinciding with the increasing excretory inadequacy of the kidney. Strangely enough, the blood pressure is not elevated until perhaps just before death. With the high concentration of blood nitrogen, there may be manifestations of uremia. Death usually results from the kidney insufficiency. Roentgen studies of the bony structures disclose the typical appearances of rickets. Genu valgum is the outstanding manifestation of the pathologic bone condition and may be the first symptom to call attention to the underlying kidney condition.

30 North Michigan Avenue

COD LIVER OIL CONCENTRATE (CONCENTRATED VITAMINS A AND D)

INEFFECTIVENESS OF LARGE DOSES IN THE PROPHYLAXIS OF OTITIS MEDIA COMPLICATING SCARLET FEVER

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The frequency with which localized purulent infections appear on the mucous membranes of animals and of men deprived of vitamin A has led to the view that an adequate supply of this vitamin may be essential for the maintenance of resistance to infection. It is logical to inquire whether certain purulent complications of the acute infectious diseases of childhood may not be prevented by supplying large amounts of vitamin A. An approach to an answer for this question has been made in the work to be reported. The otitis media following scarlet fever was chosen as the most suitable purulent infection for observation because of the following reasons. It develops at a site commonly infected in vitamin A deficient animals, it is relatively simple to diagnose, it occurs with considerable frequency and regularity, and it usually appears in the second, third and even fourth week of the disease, thus giving an opportunity for adequate prophylactic treatment. In the present study the nonsaponifiable fraction of cod liver oil containing vitamins A and D in concentrated form was given to a series of patients with scarlet fever, and the incidence of otitis media observed and compared with the incidence in a control series.

Observation of animals and man by physiologists, clinicians and pathologists has led to the impression that vitamin A deficiency is associated with lowered resistance to infection. Infections have been noted accompanying states of general malnutrition as well as various specific vitamin deficiencies but no such marked correlation has been reported or rationally developed as

¹ Mitchell, A. C. Nephrosclerosis (Chronic Interstitial Nephritis) in Child. *Chil. Abn. Dis.* 40: 101 (June) 1945 (Abn.) 19.

From the Thorndike Memorial Laboratory, Second and Fourth Medical Services (Harvard) of the Boston City Hospital and the Department of Medicine of the Harvard Medical School and the South Department (for Infectious Disease) of the Boston City Hospital.

that to be described later for vitamin A and infections. The relationship of vitamin D deficiency, for example, to the development of infections has not seemed comparable with the relationship of vitamin A, and while both these vitamins were present in the cod liver oil concentrate used prophylactically in this study, attention has been directed almost entirely to the latter.

Daniels and Armstrong,¹ Green and Mellanby,² Turner and Loew,³ and Sherman and Burtis⁴ have noted a high incidence of infections in animals fed vitamin A deficient diets. These authors list sinusitis, middle ear disease, bronchitis, pneumonia and pyelitis as occurring much more frequently in young rats fed vitamin A deficient diets than in control animals. The organisms isolated from well localized abscesses in the sinus lesions accompanying vitamin A deficiency in the rat are not of one variety but represent the natural flora of the cavities in which the abscesses developed.⁵ It is unlikely, therefore, that the mechanism of the development of the infections depends on the creation of conditions favorable to the development of any particular organism, but probably on a change in the natural protective forces which are effective against the normal flora. Other animal species react differently to vitamin A deprivation. Thus, guinea-pigs⁶ and monkeys⁷ succumb to colitis and do not show xerophthalmia or purulent infections. A uniform basis for the variable site of the infections complicating vitamin A deficiency in different species of experimental animals is obtained from the microscopic study of sites most favored by infection. Mori⁸ and Wolbach and Howe⁹ in the rat, Wolbach and Howe⁶ in the guinea-pig, Seifried¹⁰ in the chicken, and Tilden and Miller⁷ in the monkey have observed the development of keratinizing epithelium on the mucous surfaces on which infections arise.

Infections, including otitis media, have been described in children with xerophthalmia by Bloch,¹¹ in the skin and mucous membranes of adults by Frazier and Hu,¹² and microscopic changes in the epithelium of the mucous membrane have been recorded in a child by Wilson and DuBois.¹³ The patients observed by these authors probably suffered from diets deficient in more than one necessary factor. Their conclusions are to be

accepted with a certain reserve, but the similarity of the disease symptoms with those of vitamin A deficiency in animals, the lack of vitamin A in their diets, and their response to the administration of foods rich in vitamin A serve to indicate that vitamin A deficiency is the most likely factor and that the information gained by experimentation can be applied to conditions in man.

In summary, a lesion of the epithelial structures follows vitamin A deficiency in animals and man, the site of which differs in different species. These changes are followed by inflammation, often purulent, in which organisms, normally present, are the chief bacterial agents. The therapy or prevention of such conditions by means of the administration of vitamin A is suggested.

It has been established that the correction of at least some of the pathologic changes in experimental vitamin A deficiency is fairly rapid and complete when this dietary factor is supplied in proper amounts before marked infection appears.¹⁴ Bloch,¹⁵ Frazier and Hu,¹² and Pillat¹⁶ have reported success even in the therapy of well developed disease in man. After abscesses or severe diarrheas have appeared, however, in animals, the administration of vitamin A, while sometimes apparently beneficial, does not often result in complete or rapid cure. On the other hand, the maintenance of an adequate supply of vitamin A is an effective prophylactic measure. One might expect that similar relationships would be present in the use of vitamin A therapy in man, namely, that well developed infections would be resistant to therapy but that such infections might be prevented or minimized by maintaining an adequate vitamin A intake.

Various applications of anti-infective vitamin therapy in man have been reported. Dean¹⁷ has treated chronic infections in the paranasal sinuses of children without success. Wright, Frosst, Puchel and Lawrence¹⁸ have reported the careful study, through a period of winter months, of sixty infants less than 2 years of age in a foundlings' home. The twenty infants who were given extra amounts of cod liver oil concentrate showed an incidence of respiratory infections equal to that in the forty control infants. Barenberg and Lewis,¹⁹ whose work has been discussed at length by Hess,²⁰ likewise found no difference in the incidence of respiratory infection between groups of hospitalized infants receiving different amounts of vitamin A in their diets. In contrast to the discouraging reports of others, Green, Pindar, Davis and Mellanby²¹ were encouraged by finding that, among 275 women treated for one month before term with large doses of vitamin A, the morbidity from puerperal fever was 11 per cent, as compared to 47 per cent in an equal number of controls.

The prophylaxis of the otitis media of scarlet fever offers a test of the anti-infective properties of large

1 Daniels, Amy L, and Armstrong, Margaret E. Nasal Sinusitis Produced by Diets Deficient in Fat Soluble A Vitamin, *J A M A* 81: 828 (Sept. 8) 1923.

2 Green, H. N., and Mellanby, Edward. Vitamin A as an Anti-Infective Agent, *Brit M J* 2: 691 (Oct. 20) 1928.

3 Turner, R. G. and Loew, E. R. Infection of the Accessory Sinuses and Upper Respiratory Tract in Avitaminosis of Rats, *J Infect Dis* 49: 244 (Sept.) 1931.

4 Sherman, H. C., and Burtis, M. P. Vitamin A in Relation to Growth and to Subsequent Susceptibility to Infection, *Proc Soc Exper Biol & Med* 25: 649 (May) 1928.

5 Turner, R. G., Anderson, Dorothy E., and Loew, E. R. Bacteria of the Upper Respiratory Tract and Middle Ear of Albino Rats Deprived of Vitamin A, *J Infect Dis* 46: 328 (April) 1930.

6 Wolbach, S. B., and Howe, P. R. Vitamin A Deficiency in the Guinea Pig, *Arch Path & Lab Med* 5: 239 (Feb.) 1928.

7 Tilden, Evelyn B., and Miller, E. G., Jr. The Response of the Monkey (*Macacus Rhesus*) to Withdrawal of Vitamin A from the Diet, *J Nutrition* 3: 121 (Sept.) 1930.

8 Mori, Shinnosuke. The Changes in the Para Ocular Glands Which Follow the Administration of Diets Low in Fat Soluble A, with Notes on the Effect of the Same Diets on the Salivary Glands and the Mucosa of the Larynx and Trachea, *Bull Johns Hopkins Hosp.* 33: 357 (Oct.) 1922.

9 Wolbach, S. B., and Howe, P. R. Tissue Changes Following Deprivation of Fat Soluble A Vitamin, *J Exper Med* 42: 753 (Dec.) 1925.

10 Seifried, Oskar. Studies on A Avitaminosis in Chickens. I. Lesions of the Respiratory Tract and Their Relation to Some Infectious Diseases, *J Exper Med* 52: 519 (Oct.) 1930. II. Lesions of the Upper Alimentary Tract and Their Relation to Some Infectious Diseases, *ibid* 52: 533 (Oct.) 1930.

11 Bloch, C. E. Klinische Untersuchungen über Dystrophie und Xerophthalmie bei jungen Kindern, *Arch f Kinderh* 89: 404 1919.

12 Frazier, C. N., and Hu, Ch'uan K'uei. Cutaneous Lesions Associated with Deficiency in Vitamin A in Man, *Arch Int Med* 48: 507 (Sept.) 1931.

13 Wilson, J. R., and DuBois, R. O. Report of a Fatal Case of Keratomalacia in an Infant with Postmortem Examination, *Am J Dis Child* 26: 431 (Nov.) 1923.

14 Macy, Icie G., Outhouse, Julia, Graham, Alice and Long, M. Louise. Human Milk Studies. II. The Quantitative Estimation of Vitamin A, *J Biol Chem* 73: 175 (May) 1927. Mori, Shinnosuke. Ueber den sogenannten Hikan (Xerosis conjunctival infantum ev Keratomalacie), *Jahrb f Kinderh* 59: 175, 1904.

15 Bloch, C. E. Further Clinical Investigations into the Diseases Arising in Consequence of a Deficiency in the Fat Soluble A Factor, *Am J Dis Child* 28: 659 (Dec.) 1924.

16 Pillat, Arnold. Does Keratomalacia Exist in Adults? *Arch Ophth* 2: 256 (Sept.), 399 (Oct.) 1929.

17 Dean, L. W. Nasal Sinus Infections in Children, *J A M A* 93: 838 (Sept. 14) 1929.

18 Wright, H. P., Frosst, J. B., Puchel, F. and Lawrence, Margaret R. Vitamin A and the Common Cold, *Canad M A J* 25: 412 (Oct.) 1931.

19 Barenberg, L. H., and Lewis, J. M. The Relationship of Vitamin A to Respiratory Infections in Infants, *J A M A* 98: 199 (Jan. 16) 1932.

20 Hess, A. F. Diet, Nutrition and Infection, *New England J Med* 207: 637 (Oct. 13) 1932.

21 Green, H. M., Pindar, D., Davis, G., and Mellanby, Edward. Diet as a Prophylactic Agent Against Puerperal Sepsis, *Brit M J* 2: 595 (Oct. 3) 1931.

doses of cod liver oil concentrate, which has a number of advantages over the tests done by others. There is a possibility that dietary deficiencies, of either marked or relative degree to the needs of growing children with infections, are present in the subjects. Otitis media is a uniform condition due, usually, to a hemolytic streptococcus and developing with a uniform frequency, which may be quite accurately determined and which is great enough to make statistical analysis reliable. Any influence of the high vitamin A dosage on the incidence of otitis media would lead to significant conclusions in regard to the etiology and treatment of the otitis media of scarlet fever and, possibly, in regard to otitis media or sinus infection in general.

SUBJECTS, MATERIALS, METHODS

All the patients with scarlet fever admitted to the South Department of the Boston City Hospital during the five months from December, 1930, to April, 1931, inclusive, numbering 509, were included in the treated series. These patients were not suffering from obvious malnutrition, xerophthalmia or hemeralopia, and, while in the hospital, received a diet containing amounts of the various vitamins which normally are considered adequate. They represent a group in which borderline, clinically unrecognizable vitamin A deficiency states, such as those described by Thatcher and Sure,²² might occur. Their age⁴ and the bacterial infections from which they suffered²¹ might tend to make their vitamin A requirements abnormally large.

The incidence of otitis media was studied from the records of 343 scarlet fever patients admitted during the five months from December, 1928, to April, 1929, inclusive, as a control. The general treatment was quite similar in the series of the two different periods. Scarlet fever antitoxin was used but had no effect on the incidence of otitis media, which was 12.6 per cent, or 24 cases, among 189 in which antitoxic serum was given, and 12.3 per cent, or 24 cases, among 194 in which antitoxic serum was not given.

The criteria for otitis media were the presence of redness and bulging of the tympanic membrane, obscuring of the malleus and loss of the light reflex. All but a few of such tympanic membranes were incised or spontaneously ruptured. The onset of the otitis media was taken to be the time of the first complaint of pain or the first observation of changes in the tympanic membrane. Only patients who were found on admission to have normal ear drums were included in the analysis. The inclusion of patients admitted to the hospital with a preexisting otitis media might alter the expected incidence which is quite constant from year to year when only cases developing under the constant conditions of a hospital are considered.²³

The cod liver oil concentrate²⁴ was a nonsaponifiable portion of the oil, suspended to 25 per cent by weight in a cod liver oil menstruum to prevent deterioration, and furnished in bulk and in 10 minim capsules. The potency of this preparation in terms of both vitamins A and D was found by the manufacturer to be about twenty times that of a good preparation of cod liver oil. The vitamin D units were 3,000 per cubic centimeter. The potency of the preparation in terms of vitamin A is

not so easily stated on account of the lack of a generally accepted standard of measurement. An assay method was used by the manufacturer which included observation of and cure of xerophthalmia, in addition to weight loss, in the rat. In terms of the unit thus determined, by which a good specimen of cod liver oil (1,000 U S P units per cubic centimeter) contains 500 units per cubic centimeter, the concentrated material contained 10,000 units per cubic centimeter. Each 10 minim capsule contained approximately 2,000 of these vitamin units. A confirmation of the vitamin A potency of this cod liver oil preparation was obtained through the courtesy of Dr. C. C. Ungley and Dr. M. M. Suzman, who estimated the potency according to the Carr and Price²⁵ antimony trichloride method, reading the resulting reaction with the Rosenheim-Schuster²⁶ modification of the Lovibond tintometer, with calculations carried out according to the method of Moore.²⁷ A reading of 30,800 "blue" units per cubic centimeter was obtained, which is about twenty-five times the "blue" units found in a good sample of cod liver oil. One thousand minims of the concentrate was approximately the equivalent in vitamin A potency of 400 cc of cod liver oil (1,000 U S P units per cubic centimeter). Although there is no generally accepted method of determining vitamin A potency, the comparisons mentioned are sufficient assurance that a highly potent preparation was employed.

A daily dose of 100 minims was thought adequate to provide the patients with a sufficiently large amount of vitamin A during the time preceding the expected development of otitis media. The 100 minims was administered in five capsules morning and evening, or as 50 minims morning and evening, in orange juice, for the first ten days in the hospital. A special record was kept of each successfully administered dose by the nursing staff. Owing to the fact that the initial supply was entirely in 10 minim capsules, which were taken by the patients only following careful instruction, a substantial number of patients did not receive the total dose. Fifty-one per cent, or 261 patients, received from 900 to 1,200 minims in ten days, 28 per cent, or 141 patients, received from 500 to 900 minims in ten days, 8 per cent, or 41 patients, received less than 500 minims, and 13 per cent, or 66 patients, received none. Since the incidence of otitis media was quite similar in the group of patients receiving the standard dose to that in the group of patients receiving less, no subdivision of the treated group of patients on the basis of varying dosage is made in the accompanying tables.

RESULTS

The incidence of otitis media found in the test and control periods was quite similar to that reported by others (Gunn and Griffith,²⁸ Dahlberg and Sydow,²⁹ Woody,³⁰ Ludy, Hunt and Cogswell,³¹ Gardner³² and Harries and Gillespie³³). There was no difference in

²⁵ Carr, F. H. and Price, E. A. Color Reactions Attributed to Vitamin A, *Biochem. J.* 20: 497, 1926.

²⁶ Rosenheim, Otto and Schuster, Edgar. A New Colorimeter Based on the Lovibond Color System and Its Application to the Testing of Cod Liver Oil and Other Purposes. *Biochem. J.* 21: 1329, 1927.

²⁷ Moore, Thomas. The Colorimetric Estimation of Vitamin A. *Lancet* 2: 219 (Aug. 3) 1929.

²⁸ Gunn, William and Griffith, Fred. Bacteriological and Clinical Study of One Hundred Cases of Scarlet Fever. *J. Hyg.* 28: 250 (Dec.) 1923.

²⁹ Woody, S. S. Scarlet Fever in *Texts Practice of Medicine* 3: 247.

³⁰ Ludy, J. B., Hunt, E. L. and Cogswell, L. H. Observations on 500 Cases of Scarlet Fever. *Mil. Surgeon* 45: 414 (Oct.) 1919.

³¹ Gardner, W. T. Scarlet Fever Otitis. *J. Laryng & Otol* 37: 497 (Oct.) 1922.

³² Harries, E. H. R. and Gillespie, F. B. Scarlet Fever Otitis. *Lancet* 1: 243 (April 26) 1923.

²² Thatcher, H. S. and Sure, Barnett. Avitaminosis. III. Pathologic Changes in Tissues of the Mouse During Early Stages of Vitamin A Deficiency. *Arch. Path.* 13: 756 (May) 1932.

²³ Dahlberg, Gunnar and von Sydow, Gertrude. Konklusionsstatistische Methoden an Scharlach und Diphtheriemateriali ergaben alle Werte von 12.3 bis 12.4. 1929.

²⁴ Obtained from the White Laboratories, Inc., Gloucester, Mass.

its incidence that could be attributed to the administration of the cod liver oil concentrate The three tables indicate the distribution of the cases by months (table 1), their distribution by ages (table 2), and their distribution in regard to the time when the otitis media began (table 3)

TABLE 1—Incidence of Otitis Media by Months

	1928-1929 No Cod Liver Oil Concentrate			1930-1931 Excess Cod Liver Oil Concentrate		
	Scarlet Fever Cases	Otitis Media		Scarlet Fever Cases	Otitis Media	
		Cases	Per Cent		Cases	Per Cent
December	44	1	2.2	52	7	8.3
January	76	8	10.5	105	11	10.5
February	57	7	8.1	101	11	10.9
March	75	10	13.3	106	6	5.7
April	61	1	2.1	115	11	11.2
Total	343	39	11	509	48	9.4

The distribution of the cases of otitis media by months was quite regular in 1930-1931 but somewhat irregular in 1928-1929 The age distribution, which has such a marked influence on the incidence of otitis media was not the cause of the latter The total incidence of otitis media for the two periods was essentially the same It will be noted that the widest varia-

TABLE 2—Incidence of Otitis Media by Age

	1928-1929 No Cod Liver Oil Concentrate			1930-1931 Excess Cod Liver Oil Concentrate		
	Scarlet Fever Cases	Otitis Media		Scarlet Fever Cases	Otitis Media	
		Cases	Per Cent		Cases	Per Cent
12 years, inclusive	37	11	29.7	35	10	28.5
2-4 years, inclusive	54	11	20.3	69	13	18.8
5-9 years, inclusive	123	14	11.3	208	18	8.6
More than 9 years	123	3	2.3	197	7	3.5

tion in the incidence, which was from 2.2 to 21.3 per cent, occurred in the months showing the smallest number of cases

The age of the patient influences markedly his liability to contract otitis media When the occurrence of otitis media is compared in the two periods under consideration, however, it is seen that the incidence of

TABLE 3—Incidence of Otitis Media by Time of Onset

	1928-1929 No Cod Liver Oil Concentrate			1930-1931 Excess Cod Liver Oil Concentrate		
	Scarlet Fever Cases	Otitis Media		Scarlet Fever Cases	Otitis Media	
		Cases	Per Cent		Cases	Per Cent
Total	343			509		
First week		14	4.0		8	1.6
Second week		10	2.9		17	3.2
Third week		5	1.5		12	2.3
Fourth week		5	1.5		6	1.2
More than 4 weeks		5	1.5		5	1.0
Total		39	11.3		48	9.4

otitis media was quite similar in comparable age groups in the treated and control series

Owing to the administration of the cod liver oil only during the first ten days the patients were in the hospital, it was conceivable that the effect on the incidence of otitis media might bear some relationship in time to the therapy The arrangement of the cases of otitis media for the two different periods, according to the

length of time elapsing in the hospital before the onset of otitis media, shows fewer cases in the first week of the hospital stay in the patients treated with vitamin A but no other marked differences It would seem that this variation probably had no relation to the administration of the cod liver oil concentrate

SUMMARY

The total incidence of otitis media in 343 cases of scarlet fever during five months was 11.3 per cent, a figure corresponding closely to that recorded by others The total incidence of this complication in 509 similar cases observed during five months at the same time of year two years later, most of which were treated for ten days after admission to the hospital with a total of 400,000 U S P units of vitamin A contained in a concentrated preparation of cod liver oil, was 9.4 per cent

The use of cod liver oil concentrate in such dosage had apparently no effect on the liability of the scarlet fever patients to develop otitis media

A PROTOZOAL SURVEY OF ONE THOUSAND PRISONERS

WITH CLINICAL DATA ON NINETY-TWO CASES OF AMEBIASIS

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It has been suggested in several recent articles¹ that the incidence of amebic (*Endamoeba histolytica*) infestation among the people of the United States may be higher than is generally believed While no statistics are available dealing specifically with the degree of amebic (*E. histolytica*) infestation of "healthy" normal adults in different parts of this country, other data may be used, by comparison, to support this belief For instance, recent statistics, such as those presented in the studies referred to, show for individuals examined an average incidence of about 12 to 15 per cent infestation with *E. histolytica* It must be noted that this rather high figure is obtained from studies chiefly in the so-called protozoal endemic areas (California the Mexican border and the Gulf states) and moreover on sick people seeking treatment either from private physicians or from hospitals and clinics It is assumed that a high incidence of infestation among the sick naturally presupposes a similar high figure for the general population Certain workers² have estimated that the probable incidence for the whole country is as high as 10 per cent and even higher in areas in which amebic dysentery is endemic

There is reason to believe that there has been an actual increase of amebic infestation in this country in

Supported in part by Eli Lilly & Co., Indianapolis, and the Ciba Company, Inc., New York
From the Pacific Institute of Tropical Medicine, Hooper Foundation University of California, San Francisco, in cooperation with Dr L I Stanley, Medical Director, San Quentin Prison, San Quentin, Calif
1 Craig, C F The Amebiasis Problem J A M A 98 1615 (May 7) 1932 Kessel, J F and Mason, V R Protozoan Infection of the Human Bowel, ibid 94 1 (Jan 4) 1930 Faust, E C Incidence and Significance of Infestation with *Endamoeba histolytica* in New Orleans and the American Tropics, Am J Trop Med 11 231 (May) 1931 Craig, C F Pathology of Amebiasis in Carriers, ibid 12 285 (July) 1932
2 James, W M Diagnosis of Intestinal Amebiasis, J A M A 89 1469 (Oct 29) 1927

the last decade. Better laboratory methods as well as the growing realization by the medical profession of the importance of routine stool examinations have led to the more frequent diagnosis of amebiasis. It seems that these factors do not completely account for the increase in the number of cases reported in recent years. This is not surprising when one considers the epidemiologic conditions that have favored the spread of amebas since the time this country was first settled. We need only mention them here.

SPREAD OF PROTOZOA

There has been continual immigration into this country of ameba-infested peoples, beginning with the importation of Negro slaves from Africa. During the latter half of the nineteenth century great numbers of Chinese coolies and Japanese farmers came to the Pacific Coast, and Hindu laborers were brought in to work on the railroads. In more recent years there has been a great influx of Filipinos and Mexicans. These peoples through their unhygienic habits have served to spread the infestation wherever they have settled.

It must also be considered that large numbers of our own people migrate to endemic areas and return home infested. Our attention was first called to this when thousands of soldiers sent to the Philippines contracted amebic dysentery. Many of the Panama Canal workers returned to this country infested. The last great mass infestation of our people occurred in France during the World War, when certain divisions of our soldiers took over sectors formerly held by ameba-infected French-African troops. Kofoid's³ studies made on returning soldiers showing a high incidence of amebic (*E. histolytica*) infestation support this statement.

Another important factor favoring the spread of protozoal infestation has been due to the food fads of recent years. The public in its demand for more vitamins and roughage in the diet has greatly increased its consumption of fruits and raw vegetables. These products sometimes come from parts of the country that are highly endemic for amebiasis. Contamination is easy. Lack of cooking removes one factor of safety. Lack of personal hygiene and cleanliness makes still easier the transfer of cysts. Infestation with amebas invariably means preceding ingestion of fecal material. Amebiasis is essentially endemic and probably the most important single method of spread is by infested food handlers. When food handlers are of a race or from a place in which amebiasis is abundant, the chances for spread are enormously increased. All these various factors have no doubt played a large part in the spread of amebiasis in this country.

In view of the fact that statistics are meager in regard to the true incidence of amebic infestation, it seemed to us of value to carry out a protozoal survey of supposedly healthy adults representing a cross section of the general population. We were afforded such an opportunity through the kindness of Dr. L. L. Stanley, medical director of the California State Penitentiary at San Quentin, who permitted us to carry out a systematic protozoal survey on the prison inmates. We hoped by this work to accomplish two things: to establish the incidence of protozoal infestation of unselected cases of presumably healthy male adults in California and by summary and compilation of clinical data, to investigate the relationship between the infestation and

residential history on the one hand for cases of amebiasis, and the clinical symptoms and the infestation on the other. In addition, we wished to treat the men found harboring *E. histolytica* with two new amebicidal drugs, Carbarsone and Vioform,⁴ developed by Leake and his co-workers.⁵

SOURCE OF PATIENTS

Men from all over the state of California are sent to San Quentin Penitentiary. More than 5,000 men are housed here continuously,⁶ with about 1,500 men being discharged or paroled and a like number admitted annually. The average age for these men is between 20 and 30 years.

It was planned to limit the survey to entering men and to examine 1,000 of them. But soon after treatment was begun on the men found harboring *E. histolytica*, the problem arose as to the possibility of their reinfestation by food handlers within the prison. In order to avoid this danger it was decided to include in our protozoal survey the 250 inmates on the mess force.

LABORATORY METHODS

The men reported each morning after breakfast for three successive days to a special laboratory, where stool specimens were obtained. Thin fecal smears were made at once from these specimens by a trained technician. Numbered glass slides and horsehair paste brushes were used for this purpose and the wet smears were immersed in Schaudinn's fixing fluid.⁷ After twenty-four hours' fixation, the slides were transferred to iodine-alcohol solution and then to 70 per cent alcohol, in which they were mailed to the laboratory to be subsequently stained and examined.

Staining and examination of the slides were done at the laboratory of the Pacific Institute of Tropical Medicine in San Francisco. The iron-hematoxylin method was used. Slides found positive for *E. histolytica* were filed for permanent record. It was noticed that patients with *E. histolytica* infestation usually had concurrent infestations with one or more other protozoa.

RESULTS OF PROTOZOAL SURVEY

In this study exactly 1,000 men were examined. With the exception of the 250 food handlers, all were new entrants. Only three men were examined because of symptoms, and they each proved positive for *E. histolytica* and are included in the ninety-two cases reported as positive. Table 1 shows the incidence of protozoan infection for the men examined at San Quentin as compared with other hospital surveys and with the report of the California State Board of Health.⁸ It is interesting to note that the incidence of infestation with *E. histolytica* for the group we studied nearly approaches that found by Kessel¹ for hospital entries at Los Angeles in 1929. Excluding the three cases presenting symptoms from our ninety-two cases of amebiasis, the incidence for "healthy" adults is 8.9 per cent, or about 1 per cent less than Kessel's

4 The first forty seven cases found have been treated with Carbarsone and will be considered in a separate report. Vioform (V. V. R.) has been used to treat the remainder of the cases. Its clinical use will also be the subject of a special report.

5 Reed A. C., Anderson H. H., David N. A. and Leake C. D. Carbarsone in the Treatment of Amebiasis. *J. A. M. A.* 98: 189 (Jan. 16) 1932. Leake C. D. Chemotherapy of Amebiasis. *ibid.* 98: 195 (Jan. 16) 1932.

6 News article. *San Francisco News*, Aug. 20, 1932.

7 Reed A. C. and Johnstone, H. G. Method for Diagnosis of Amebiasis. *J. A. M. A.* 98: 729 (Aug. 27) 1932.

8 Kofoid C. V. Statistical Summary of Persons Examined for Intestinal Protozoa in California State Board of Health Twenty-Ninth Biennial Report. Sacramento, Calif.: California State Printing Office, 1926, p. 93.

1 Kessel C. A., Kofoid C. V. and Little I. T. Intestinal Protozoa in Overseas and Home Service Troops of the U. S. Army. *J. A. M. A.* 73: 121 (June 14) 1919.

figure (The term "healthy" is used because these men appeared well and had no complaints severe enough to warrant hospitalization. As Craig⁹ says, strictly speaking, there is no such thing as a "healthy" carrier.)

Interesting also is the fact that eighteen cases (7.2 per cent) of *E. histolytica* infestation were found among the 250 men on the prison mess force. It will be noted that some workers distinguish between *E. coli*

TABLE 1—Incidence of Protozoan Infestation at San Quentin Prison as Compared with Other Surveys in California*

	Number of Cases	Average Examinations per Case	<i>E. histolytica</i>	<i>E. coli</i>		<i>E. nana</i>	<i>Iodamoeba butschlii</i>	<i>Giardia</i>	<i>Chilomastix</i>	<i>Trichomonas</i>
				<i>E. coli</i>	<i>C. lacturi</i>					
Johnstone, David and Reed (1932), San Quentin Prison	1,000	30	9.2	20.2		26.3	12.5	7.0	2.3	0.2
Kofoed (1926), California State Board of Health	6,574	33	1.1	3.4	17.7	24.4	2.2	5.2	6.6	2.6
Kessel (1929), Los Angeles General Hospital	2,731	30	0.5	15.2	3.4	16.9	3.2	4.4	8.3	5.9
Reynolds (1928), College Medical Evangelists, California	1,000	40	16.0	6.0	10.1	21.0	7.2	3.7	20.9	5.8

* This table has been taken in part from one used by Dr. Kessel.³

and *Councilmania lacturi* and that the incidences given for these two organisms vary greatly. Kessel attributes this variance to the personal factor entering into the differentiation between *E. coli* and *C. lacturi* and to the fact that there are many cases of mixed infestation which show considerable variation from day to day in the same patient. We have simply classified both forms as *E. coli*. Our incidence of 20.2 per cent *E. coli* is nearly the same as Kofoed's finding of 21.1 per cent for both *E. coli* and *C. lacturi* together, and slightly higher than Kessel's figure of 18.6 per cent for the two organisms. Our figures for three of the other commonly found protozoa are the highest of those in the

TABLE 2—Concurrent Protozoan Infestations in Ninety-Two *E. histolytica* Cases

Protozoa	Number of Cases	Per Cent
<i>Endamoeba coli</i>	34	37.0
<i>Endolimax nana</i>	41	44.5
<i>Iodamoeba butschlii</i>	20	31.5
<i>Giardia lamblia</i>	12	13.0
<i>Chilomastix mesnili</i>	3	3.2
<i>Trichomonas hominis</i>	1	0.9

table, an incidence of 26.3 per cent for *E. nana*, 12.5 per cent for *Iodamoeba* and 7.0 per cent for *Giardia*. *Chilomastix* was noted in only 2.3 cases of the 1,000 examined, while only 0.2 cases of *Trichomonas* infestation are recorded. We have no explanation to offer for these low figures.

Table 2 shows the incidence of concomitant protozoa in the ninety-two persons in whom *E. histolytica* were found. It is presented here merely to show that infestation with *E. histolytica* is often not a single protozoal infestation.

⁹ Craig (footnote 1, fourth reference).

CLINICAL SURVEY

Each new arrival at San Quentin Penitentiary has a thorough physical examination and a complete medical history taken by one of Dr. Stanley's staff. Routine Wassermann tests are done in all cases. The clinical records of the ninety-two cases positive for *E. histolytica* were used in compiling the data presented here. An additional history was taken on these men to determine whether they had at any time suffered from symptoms referable to the gastro-intestinal tract or had had any other conditions that might be considered due to amebic infestation. A complete residential record was also obtained from each man.

The average age for the group was 28.5 years. Of nationalities represented, there were sixty-four Americans, four American born Negroes, eleven Mexicans, four Italians, three of whom were born in this country, two Filipinos, and seven others of foreign parentage, five of whom were born here. A total of seventy-six were born in the United States. The number of men giving occupations concerned with the handling of food is higher than would otherwise be expected, as 250 of the men were from the mess force. There were ten cooks, seven bakers, four waiters, six dairymen and three butchers. Various other trades were represented by one or two men in each group, and seventeen men were classed as laborers.

RESIDENTIAL HISTORY

It is interesting to observe that seventy-eight of the ninety-two men, or 84 per cent, gave a history either of having at one time lived in areas in which amebiasis is known to be endemic or of having visited these localities for short periods. Twenty-three men gave a history of tropical residence other than Mexico. Six had been for some time in the Orient, five in Panama, four in the Philippines, five in South America or Cuba and three in Hawaii. Some of these men had been in Mexico as well and so are included in the total of eighteen men having lived in that country, while eleven of the eighteen were native born Mexicans. A total of thirty-six had had tropical residence, while six had visited Tra Juana. Fifty-six men had resided in Los Angeles or southern California and four others had stayed in these places for short periods. In addition, thirty-seven of these fifty-six men had also lived along the Mexican border or had been in Mexico or other tropical countries. The others, numbering nineteen men, had resided only in Los Angeles with the exception of two, who had been in France during the war. A total of eighteen had at one time lived along the Mexican border, some of whom claimed tropical residence as well, while thirteen had also lived in southern California, and so are included in the fifty-six men mentioned.

The small number of fourteen men gave no history of tropical residence or of having ever lived in southern California or along the Mexican border. However, nine of these men had lived for most of their lives in the Sacramento or San Joaquin valleys of California, where amebiasis is endemic. From the varied residential histories given, it may be observed that many of the men resided in several places endemic for amebiasis and so may have been exposed to infestation with *E. histolytica* in any one of these localities.

CLINICAL SYMPTOMS

We believe that the thousand men we have examined are fairly representative of the general population as far as matters of health are concerned. However, the

use of the term "healthy" applied to the subjects with amebiasis immediately raises the question of whether or not one can consider carriers of *E. histolytica* as healthy even though they may have no complaints at the time of examination. It is our belief that the presence of *E. histolytica* in the colon is sufficient to excite symptoms which may be vague or severe, depending on the quantity of pathologic changes. The absence of important symptomatology in this survey can be attributed to the fact that the men found harboring *E. histolytica* were mostly young and of a type paying little attention to mild symptoms. We found that of the thirty-nine men who had no gastro-intestinal complaints, twenty-seven were under thirty years of age. There was one case in which no special history was taken.

Of the thirty-nine men admitting no complaints referable to the gastro-intestinal tract, there were sixteen who had palpable sigmoides, which is of small clinical significance. A majority of the men, fifty-two, had experienced notable gastro-intestinal upsets. Of these must be mentioned again the three men examined because of the presence of dysentery, pains and gas, and another who had recently had a severe attack of dysentery. Twelve others had suffered from attacks of diarrhea, some of which may have been true dysentery although the patients do not remember having passed blood in their stools. Constipation was complained of in twenty-three cases, in several of which attacks of diarrhea had also occurred and so are included in the twelve cases given. There were twenty-eight patients who complained of indigestion, of whom twelve had abdominal pain as the only symptom and three others who had noticed only the belching of gas or a "bloated feeling." Nine men had both pain and gas, while an additional four had suffered from nausea and dizzy spells following meals. Many of these twenty-eight men had other complaints as well, such as constipation or diarrhea. The sigmoid was found palpable in twenty-two of the fifty-two men who had gastro-intestinal symptoms. Of miscellaneous other associated intestinal disturbances or diagnoses, four men had hemorrhoids, three had been operated on for rectal diseases, six for appendicitis and one for stomach ulcer. There was one case of amebic abscess of the liver. The duration of these gastro-intestinal symptoms, when known, averaged four and one-half years.

ASSOCIATED DIAGNOSES

We have included other interesting observations on the ninety-two men afflicted with amebiasis, not because they have any direct relation to amebic infestation but rather because they indicate the type of men we have examined. There were twenty-eight cases of gonorrhea, an incidence of 30 per cent. One may say that this as well as the varied residential history indicates the careless manner of living of these men and suggests a similar carelessness in food habits. There were ten who had had smallpox, which they had probably contracted because of their residence in tropical areas, where this disease as well as amebiasis is common. Six had had typhoid. However, it is noteworthy that only two gave a history of having had malaria, in spite of the high percentage having lived in tropical areas.

Only five men gave a history of syphilis, of whom four were positive on entry as shown by the Wassermann test. Of other diseases noted tuberculosis is the only one worthy of mention as it was found or suspected in seven cases. There were twelve men who complained of rheumatism.

SUMMARY

1 In a protozoal survey of 1,000 inmates at San Quentin Prison, infestation with *E. histolytica* was found in 92 per cent.

2 Seventy-eight of the ninety-two men with *E. histolytica* infestation lived in or had visited areas in which it is well known that amebiasis is endemic, and thirty-six of these had lived in tropical regions at one time.

3 Fifty-two men had experienced notable gastro-intestinal upsets, twenty-eight having complained of indigestion, sixteen of diarrhea or dysentery, and twenty-three were bothered with constipation when examined.

4 Thirty-nine men stated that they did not have gastro-intestinal complaints. Of these, twenty-seven were under 30 years of age and in most cases had only recently been to endemic areas.

EFFECT OF HYPERTONIC DEXTROSE SOLUTIONS ON INTRACRANIAL PRESSURE

IN ACUTE CRANIAL INJURIES

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WITH THE ASSISTANCE OF

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It has been a matter of general knowledge for many years that the most important finding in acute traumatic injury to the brain is increased intracranial pressure. This is caused by three factors: swelling of the brain due to hemorrhage, congestion and edema, increase in the amount of cerebrospinal fluid in the ventricles and cisterns, and increase in blood pressure. In a general way, the reaction of these three factors on one another may be explained as follows. The brain, encased and protected within a rigid bone box and covered by a thick, practically nondistensible dura mater, has little excess space to accommodate the hemorrhage, congestion and edema that accompany injury. As the cortex becomes swollen, it presses tightly against the dura and cranium and restricts the outflow of cerebrospinal fluid and blood through the cranial sinuses. This backpressure on the cerebrospinal fluid, whose production is increased by the active hyperemia of the choroid plexuses, distends the ventricles and aggravates the pressure already present on the cortex. Further accumulation of cerebrospinal fluid and blood in the basal cisterns irritates the vital centers in the medulla, and the pulse is slowed and blood pressure increased. These three factors continue to react on one another, setting up a vicious spiral that increases the intracranial pressure and eventually brings about the death of the patient unless it is adequately relieved.

Attempts have been made, from time to time, to break up this vicious spiral by attacking one or more of these three factors. Venesection was practiced to reduce blood pressure. This, of course, was of little help. Later, the operative procedure of subtemporal decom-

From the Department of Surgery, Cook County Hospital, Read before the Chicago Surgical Society, Oct. 7, 1932. Owing to lack of space this article is abbreviated here by the omission of a table summarizing the clinical observations in twenty cases. The complete article appears in the authors' reprints.

pression was widely used to relieve pressure on the cortex and allow for possible drainage of cerebrospinal fluid. This was inadequate, as I showed about ten years ago in a paper presented before the Chicago Surgical Society. At that time, believing that reduction of cerebrospinal fluid and blood content was the best means of relieving all the intracranial pressure symptoms, I advocated the repeated removal of this fluid by lumbar drainage, and this method has been widely used with very good results. More recently the intravenous injection of hypertonic solutions has been advocated to reduce brain volume and cerebrospinal fluid content.

The experiments of Weed and McKibben¹ in 1919 on normal cats showed that intravenous injections of hypertonic salt solutions caused a shrinkage of the brain as well as a loss of water from all tissues and parenchymatous organs of the body. Clinicians soon utilized this knowledge to reduce brain volume in all states of increased intracranial pressure. Hypertonic solutions of sodium chloride were first used up to 20 and 30 per cent in strength, but the results in the injured human subject were not so successful as the experiments on normal animals indicated. Patients developed convulsive attacks, breathing became labored, and some patients went into a state of coma and died. It has since been shown that the brain cells gave up some of their fluid content for a brief period while the salt was still present in the blood stream, but later when the salt had passed from the blood vessels into the brain cells, which seemed to have an avidity for sodium chloride, fluid flowed back again into the cells and the swelling of the brain recurred to a greater extent than before.² Other solutions were then substituted for sodium chloride. Magnesium sulphate, with its power of attracting water into the intestinal tract, was given both by mouth and by enema, with seemingly good results. It has also been given intravenously in small doses. Later dextrose was used intravenously in from 25 to 50 per cent solution. From 100 to 200 cc of dextrose solution was injected into the veins of the forearm, and favorable clinical reports from its use in cranial injury were made by a number of clinicians.

Exact determinations of the amount of reduction in cerebrospinal fluid pressure were not made, but the method has nevertheless become quite popular and is in common use today.

In order to determine accurately the efficacy of this method in acute cranial injury in man, I have used it in many cases and herewith report my results in twenty clinical cases. In ten cases, 100 cc of 50 per cent solution was used and, in ten cases, 200 cc of 25 per cent solution. The solution was injected slowly during a period of from twenty-five to thirty minutes into the veins of the forearm. Patients were chosen with moderately severe states of increased intracranial pressure due to cranial injury. In order to make observations extending over several hours, patients were chosen who had recovered from shock and were fairly quiet or stuporous. Cases of depressed fracture and bleeding from the middle meningeal artery were ruled out. A spinal puncture was made in the second lumbar interspace, with the patient lying on his side, the head being on a level with the spine. With a mercury manometer, readings were taken of the spinal pressure without allowing more than a drop or two of spinal fluid to

escape, to determine presence of blood and a free tap. A record of the pulse, blood pressure and respiration was kept during the experiment. The spinal needle was left in place whenever possible, to record changes in spinal fluid pressure. In unruly patients, readings were taken by repeated punctures. These experiments have been carried on during the past four years. In seven cases, very accurate determinations were possible over the first two hours. In thirteen other cases, favorable observations were made over a period of from twenty-four to forty-eight hours. In all twenty cases, similar results were observed.

These results may be summarized as follows. In eleven cases there was an initial drop in pressure of from 1 to 4 mm of mercury during the first thirty minutes, then a gradual rise to a point above the initial pressure in two hours. In some cases this increase amounted to as much as 50 per cent of the original pressure. This was reduced to the initial pressure in twenty-four hours. In nine cases, however, the rise was immediate and continuous for two hours, with slight fluctuations, and gradually returned to the initial pressure in twenty-four hours. In about half the cases the blood pressure rose and the respiration became labored. This was more evident with the 50 per cent solution than when 25 per cent solution was used, but it occurred with both. Headache was relieved for a short time in some cases, but not to the degree of relief obtained when spinal fluid was withdrawn, as was done in several cases. Milles and Hurwitz³ obtained similar results in normal animals after two hours, showing an initial fall in pressure, followed by a secondary rise and toxicity. Ernst,⁴ in a lengthy study involving experiments on normal cats, shows curves in which there is an initial fall in pressure followed by a secondary rise after two hours, but he fails to comment on this phenomenon. Browder⁵ cites similar results in human cases.

How is one to explain these results? Is it possible that dextrose behaves similarly to sodium chloride? It is evident that the effect of hypertonic solutions injected intravenously differs in normal animals from that found in human cases of cerebral injury. The rise in pressure is more prompt in the human cases, occurring in from twenty to thirty minutes. In the animal experiment on uninjured brains, the pressure increases after two hours, as shown by Milles and Hurwitz.³ In animals whose brains have suffered trauma, the rise is immediate and prolonged. This has been proved by Hoff, in a series of experiments on animals whose brains have been injured by dropping a weight from a height on their heads. He finds an initial congestion of the cortical vessels and choroid plexus, with increased secretion of cerebrospinal fluid dilating the ventricles. The tissues in the neighborhood of the ventricles absorb the cerebrospinal fluid under pressure, producing a secondary compression of the cortical vessels and sinuses and preventing outflow of venous blood. If salt solution or dextrose is injected intravenously during this stage, some of it is held in the brain cells and causes a secondary swelling of the brain, aggravating the intracranial pressure. In the human being the increase in pressure is produced in the same way.

3 Milles, George, and Hurwitz, Paul. Effect of Hypertonic Solutions on Cerebrospinal Fluid Pressure with Special Reference to Secondary Rise and Toxicity, *Arch Surg* 24: 591 (April) 1932.

4 Ernst, Max. Untersuchungen über die Wirkung anisotonischer Lösungen auf Gehirn und Liquor, *Deutsche Ztschr f Chir* 226: 222, 1930.

5 Browder, Jefferson. Dangers in Use of Hypertonic Salt Solutions in Treatment of Brain Injuries, *Am J Surg* 8: 1213 (June) 1930.

1 Weed, L. H., and McKibben, P. S. Pressure Changes in Cerebrospinal Fluid Pressure, After Intravenous Injection of Solutions of Various Concentration, *Am J Physiol* 48: 512 (May) 1919.

2 Hoff, Hans. Experimentelle Studien zur Frage des postkommotellen Hirnödems, *Ztschr f d ges Neurol u Psychiat* 129: 583, 1930.

DIABETES MORTALITY—DROLET

DIABETES MORTALITY IN NEW YORK CITY DURING THE THIRTY-YEAR PERIOD 1901-1931

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In 1901 there were 501 deaths from diabetes recorded in New York City, in 1931, nearly four times as many, namely, 1,921 deaths, even though insulin had been available for a decade.

True, during these thirty years, New York's population has materially increased, in fact, doubled from three and a half millions to seven millions. Secondly, in that metropolitan center is included an unusually large proportion of Jews, with their higher susceptibility to diabetes, who are estimated to total now nearly two millions, or almost 30 per cent of the entire city. Thirdly, there has also to be taken into consideration the fact that—with the decreasing birth rate, 24 per thousand in 1901 and only 16 in 1931 along with the more effective control of infectious diseases, especially among children, and of tuberculosis more prevalent among younger adults—the composition or

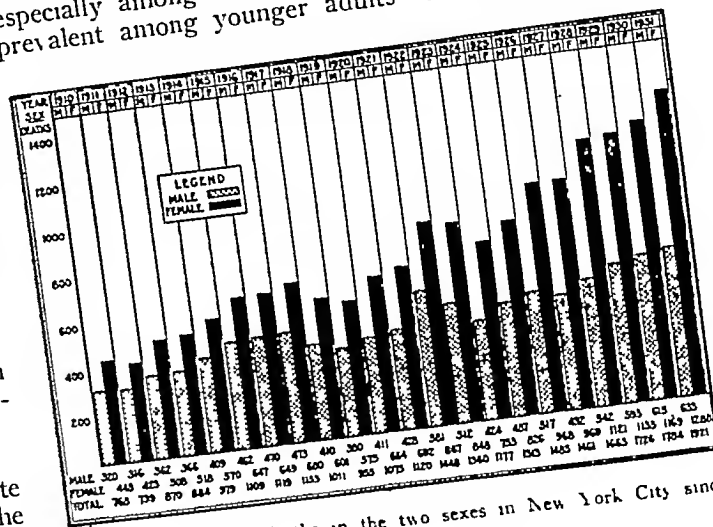


Chart 1—Diabetes deaths in the two sexes in New York City since 1910

age distribution of the population has been materially altered, or, as it is now being described, New York has 'aged' considerably. While the federal census of 1900 showed here in a million males 157,625 past the age of 45 the enumeration of 1930 brought out that the same group contained 211,077, among females, practically the same change in a given million, namely, a rise, during thirty years roughly, from 160,000 to 212,000 past middle adult life. Therefore, while the crude death rate from diabetes per hundred thousand of population had risen from 14.2 in 1901 to 27.1 in 1931, or nearly doubled, the standardized rate, taking into account growth, and adjusted for comparison on the basis of a similar age composition throughout the thirty-year period changed from 17.3 to 27.9, or truly rose by 58 per cent.

RISE AMONG WOMEN

The increase in diabetes mortality has not, however, been the same for the two sexes and, as noted elsewhere lately, should be said to be almost wholly confined to females. For instance the standardized death rate in the male sex in New York during the quinquennium

A review based on Reports Department of Health City of New York
1. Lee W. W. The Recent Mortality from Diabetes in the United States J. Prev. Med. 2: 6 (Nov.) 1929

VOLUME 100
NUMBER 10

From my results in the human subject with an acute brain injury, and from Hoff's experiments on dogs whose brains were traumatized, it is evident that the conditions are quite different from those in the normal animal, and any deductions made from experiments on normal animals must be carefully qualified. This picture is in accord with my observations published ten years ago,⁶ which were based on postmortem examinations while I was a pathologist to the Cook County Hospital during the years 1912 to 1918, and clinical and experimental work done between 1919 and 1922. I found at that time, in cases of cranial injury, a most marked accumulation of cerebrospinal fluid in the ventricles, causing them to distend and push the cerebral cortex out tightly against the dura, compressing the cortical vessels and sinuses. Furthermore, there was marked accumulation of fluid in the basal cisterns and about the medulla extending downward into the spinal canal. The edema of the brain was not marked in most cases, and was inhibited by the pressure put on it by the distention of the ventricles and cisterns. As the outlet to the cerebrospinal fluid was hindered by the pressure exerted on the cortex and sinuses by the distended ventricles, the increased pressure could be relieved only by withdrawal of cerebrospinal fluid and blood from below the tentorium cerebelli. Not only did emptying of the basal cisterns relieve all medullary symptoms of slow pulse, stertorous respiration, and increased blood pressure, but also emptying of the ventricles allowed the cortex to fall away from the dura and permitted normal functioning of the cortical vessels and sinuses to take place. This eventually resulted in relief of the congestion and edema of the brain, which gradually subsided in about seventy-two hours in moderately severe cases. The importance of keeping open the pathway of cerebrospinal fluid circulation and absorption through the cranial sinuses was stressed by me in a paper published in 1922.⁷

CONCLUSIONS

1 The use of hypertonic dextrose solutions in acute states of intracranial hypertension due to injury of the brain in man results in immediate increase of pressure in half of the cases, in slight temporary reduction of the pressure in half of the cases and in secondary increase in all the cases after from fifteen to thirty minutes. This is due to pressure on the return venous flow in the sinuses of the brain.

2 In normal animals used for experimental purposes, there is a primary fall in pressure because there is no hindrance to the circulation in the sinuses, the secondary rise in pressure is due to the absorption of dextrose by the brain cells and causes edema of the brain, but to a less extent than was found when sodium chloride was used.

COMMENT

Hypertonic dextrose solutions not only do not appreciably lower intracranial pressure as measured directly by the spinal manometer, but in many cases the pressure is actually increased. The use of these solutions leads to a false sense of security in the treatment of acute cranial injuries, allowing prolonged pressure on the cortex of the brain and leading to atrophy and fibrosis of the cortical nerve cells.

104 South Michigan Avenue

6 Jackson Barr. The Management of Acute Cranial Injuries by the Early Exact Determination of Intracranial Pressure and Its Relief by Lumbar Drainage Surg. Gyne. Obst. 49: 503 (April) 1922
7 Jackson Barr. The Circulation of the Cerebrospinal Fluid Its Importance in Acute Cranial Injury T. A. M. A. 79: 1394-1396 (Oct. 21) 1922

1901-1905 was 16.4 per hundred thousand, while during the period 1926-1930 it averaged 17.9 and was therefore only 1.5 points higher, but the similarly adjusted death rates in the female sex for these two quinquennia were respectively 18.2 and 32.4, an increase of 78 per cent

Among men under 55 in New York City, even a slight decline in the mortality from diabetes has been noticeable during the thirty-year period under consideration, but it has been counterbalanced by a fairly definite tendency for higher death rates among those past that age (chart 3)

Among females, increases in the diabetes death rate have been definite after women are past the age of 45 in the group 45-55 years, in a comparison of the rates of the first quinquennium of the century with the recent

deaths, in 1901 the proportion was 0.6 per cent. In chart 1 may be studied figures of the mortality charged annually since 1910 to diabetes in New York City

REVERSAL OF SEX RATIO

Thirty years ago, in New York City, the male deaths from diabetes, 269 in 1901, still exceeded definitely those of the female sex, which numbered that same year 234, but in 1931 the 1,288 deaths among females were twice as numerous as the deaths in the male sex, 633. It is interesting to note that in New York City and in the United States this reversal of the proportion of diabetes mortality in the two sexes took place practically at the end of the last century or at the beginning of the present one, whereas in England and Wales it first became pronounced in the early twenties, namely, appearing, as the registrar-general noted, "with some suddenness especially in 1920"

In general, it is usually with the consumption of food and of sugar particularly that diabetes mortality is reckoned to be linked, but as to the greater rate of increase in the female sex lately, opinions have to be more speculative. A thought in conjunction with this situation that one could entertain might refer to the earlier liberation in America and more noticeable

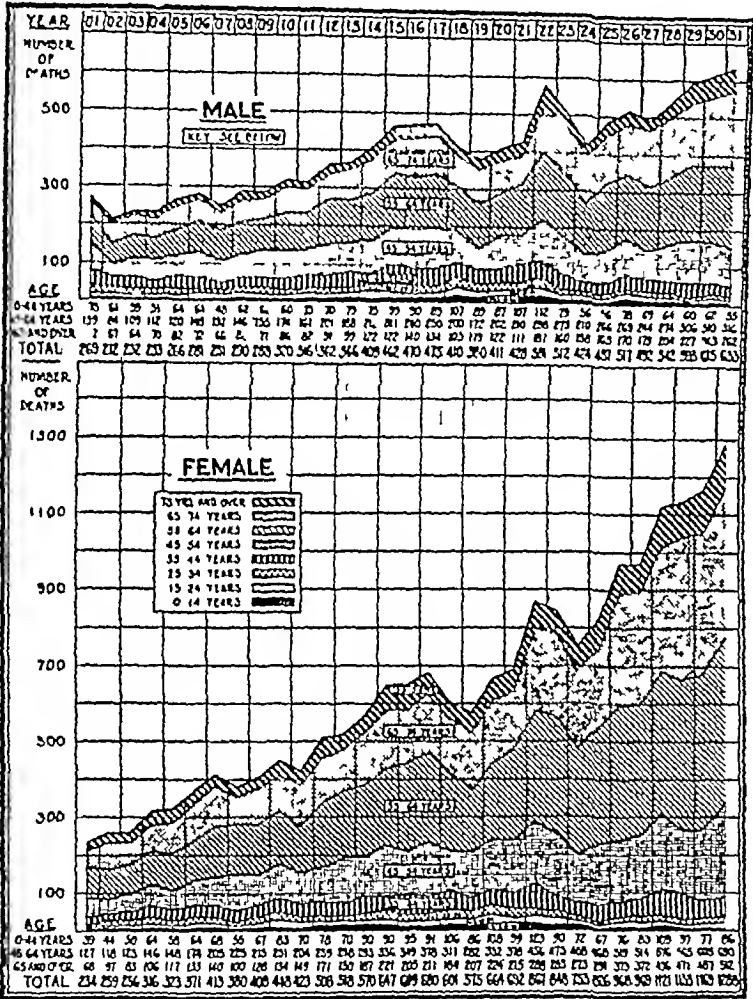


Chart 2—Diabetes deaths according to sex and age in New York City since 1901

one, there is noted an increase in the diabetes death rate from 30 to 50 per hundred thousand or by 60 per cent, among women between 55 and 65, the rate has practically doubled, namely, from 93 to 181, among those between 65 and 75, it has risen from 154 to 333, or by 116 per cent, and among those 75 years of age and over, the rates have been high, namely, from 180 to 282, or a rise of only 35 per cent, naturally interfered with by other intercurrent conditions common to advanced age

In 1901, in New York City, the 503 deaths recorded as due to diabetes were only 0.7 per cent of the total 70,720 deaths from all causes that year, in 1931 this disease was held responsible for 1,921 deaths in the grand total of 77,418, or for 2.4 per cent, a proportion three times as great as previously. During the year 1930, in the United States Registration Area, the mortality from diabetes comprised 1.7 per cent of all

Average Annual Mortality from Diabetes in New York City During Successive Quinquennia Since 1901*

Five Year Period	Male			Female			Both Sexes		
	Rate		Standardized†	Rate		Standardized†	Rate		Standardized†
	Annual Deaths	Crude		Annual Deaths	Crude		Annual Deaths	Crude	
1901-1905	242	12.0	16.4	278	14.6	18.2	520	13.8	17.4
1906-1910	286	12.8	16.4	404	18.1	22.8	690	15.4	19.6
1911-1915	388	15.2	18.7	533	21.1	25.3	921	18.1	22.3
1916-1920	429	15.7	18.4	634	23.0	25.9	1,063	19.4	22.5
1921-1925	450	16.1	18.1	797	26.2	28.0	1,244	21.2	23.5
1926-1930	552	10.4	17.9	1,072	32.0	32.4	1,624	24.2	25.7

* Per hundred thousand of population of each sex or group
† On basis of standard million population, England and Wales, 1901

release from physical labor and home drudgery, lightened by the "machine age," that the so-called modern woman enjoys here. Has that change of habits taken place sooner in the United States than in England? Is diabetes a concomitant of reduced physical exercise—throwing a greater load for necessary elimination on the internal organs?

INSULIN AND MORTALITY

The influence of insulin,² if any, beyond postponement of the age at which death from diabetes follows, cannot be said to be striking on the mortality in New York City, though it may have checked a greater rate of increase. In the male sex, the death rate during the last thirty-year period was indeed highest in 1922, namely, 20 per thousand—though this was somewhat of an isolated spurt—and it did come down in 1923 to 17, and to 14 in 1924, but thereafter a comparative slight rate of increase was resumed, as shown in the inserts in chart 3. Among females, even with the appearance of a decrease in 1924 and 1925, the death rate continued to increase thereafter and, for that matter, since 1926 has been sharply going up.

More marked and definite than insulin, however, is, as is well known, the influence of comparative shortage of food on the mortality of either sex. Thus, for instance, in 1918 and 1919 the number of deaths both among men and among women was noticeably reduced,

2 Insulin was introduced in 1922

again, following the short period of unemployment in the early twenties, another recession occurred and the mortality came down in 1924 and in 1925. For that matter it seems, generally speaking, that for some three years following a comparative food shortage diabetes mortality is reduced, but thereafter its course is resumed. Strangely, so far, namely, in both 1930 and 1931 in New York City, even after the burst in 1929 of the so-called bubble of prosperity, diabetes mortality has continued to rise. The course of it during the next two or three years is still problematic.

JEWS AND DIABETES

Bolduan and Weiner,³ in their recent study of New York City mortality among Jews and non-Jews, in the white population, brought out clearly the striking difference between the two groups as regards diabetes

sex of this group and 25.7 among their females. These comparatively lower diabetes rates for the colored group, however, must be taken with some reserve, as its age composition here is probably different and younger, on an average, than the white group. Differences in diabetes mortality between the two sexes, however, are practically similar among the colored races and with the white race.

SUMMARY

In New York City, from 1901 to 1931, the recorded mortality from diabetes has risen from 503 to 1,921, or, from a crude rate of 14.2 per hundred thousand to 27.1, and from a standardized death rate of 17.3 to 27.9.

Among females, diabetes mortality has increased more rapidly, the death rate, standardized, having been 16.3 in 1901 and 35.5 in 1931, whereas among males,

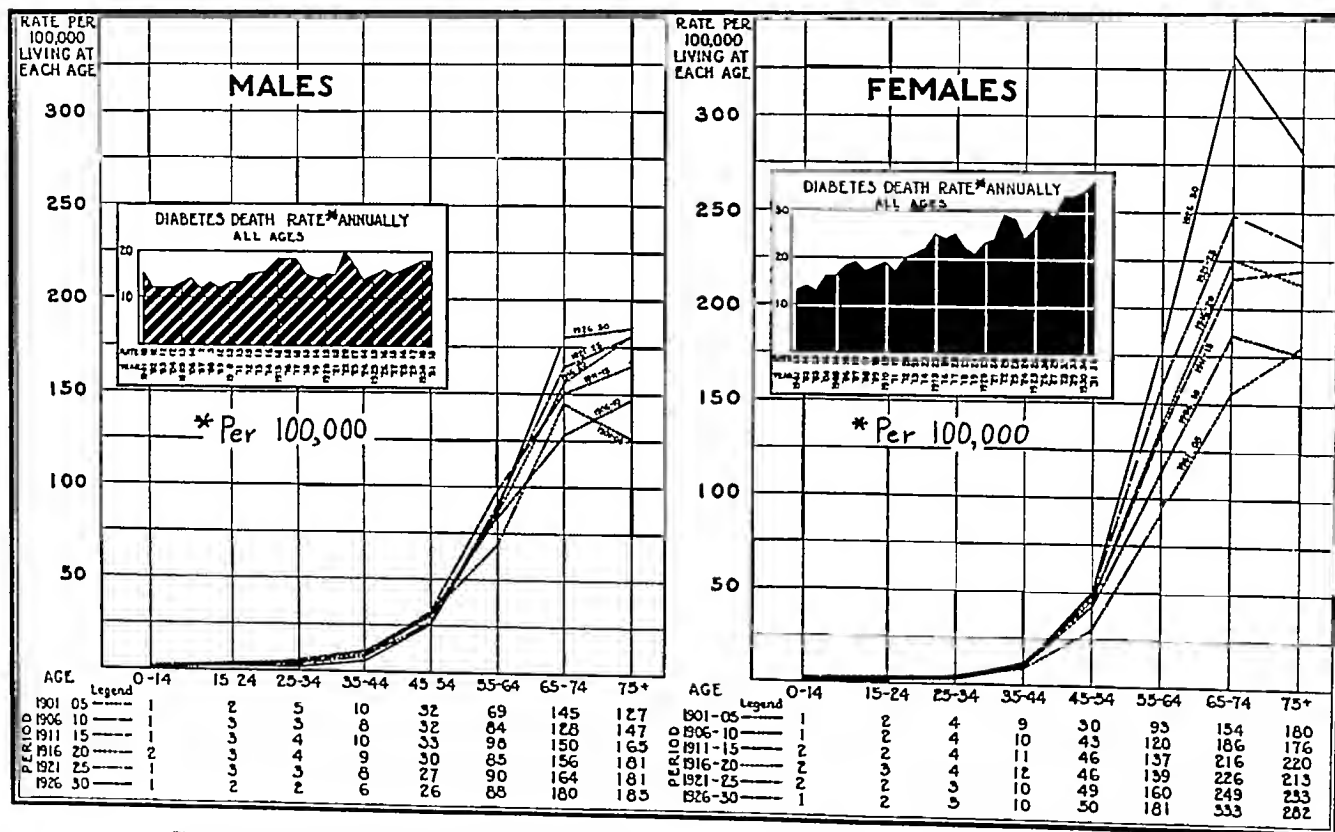


Chart 3—Diabetic death rate annual and by five year periods in the two sexes in New York City since 1901

thus for instance, in 1931 among non-Jews, in the age group 50-60 this disease was responsible for slightly less than 20 deaths per thousand from all causes, whereas among Jews it was chargeable for 40 per thousand, among non-Jewish women between 60 and 65 there were over 65 deaths on an average from diabetes among each thousand deaths from all causes, but among Jewish women of the same age the mortality was nearly twice as high, or about 115 deaths from diabetes per thousand from all causes.

In New York City the mortality from diabetes among the colored races is at a lower rate than among the white race. For instance, in 1931 while the crude death rate of the entire population from diabetes was 27.1 per hundred thousand among the colored races mostly Negroes it was 18.4 being 11.1 in the male

adjusted similarly, it has changed only from 18.3 to 19.0. Among men past 55, the diabetes death rate in New York City has, however, measurably increased, among women, the rise begins earlier, namely, at 45 years of age, and their death rate has gone up markedly.

The population of New York City is almost 30 per cent Jewish, and in this racial group the proportion of diabetic deaths to all other causes exceeds markedly that of the non-Jewish white population of the city. Among the colored races, the death rate has been lower than in the white race, but the same excess among females has been noted in both groups.

While a comparative shortage of food during the World War has here too been followed by some diminution of diabetes mortality, the use of insulin since 1923 has been accompanied by only a slight recession which has been entirely lost since

380 Fourth Avenue

³ Bolduan, Charles, and Weiner, Louis. Causes of Death Among Jews in New York City, read at the annual meeting of the American Public Health Association, Washington, 1932.

Clinical Notes, Suggestions and New Instruments

OPEN SAFETY PIN IN THE STOMACH OF A TWO MONTHS OLD BABY

HARRY OTTIN, M.D., SPRINGFIELD, ILL.

A baby girl, aged 2 months, swallowed an open safety pin, Oct. 4, 1932. The child had been crying, and to quiet it the mother pressed it against her bosom. As she did so the child's open mouth was pressed against the safety pin in the mother's dress. It promptly swallowed the pin.

The use of the roentgenograph the next day and of the fluoroscope each succeeding day for six days showed the open safety pin in the cardiac end of the stomach in the same position as when swallowed. During these days the child was regularly nursed and was given bread and milk, potatoes, and cooked cereals. In addition a barium meal was given definitely to locate the safety pin in the stomach, and it was also hoped that the barium might carry the pin out of the stomach with it. October 10, it was decided to use operative intervention because it was feared that the pin might cause perforation and peritonitis.

A laparotomy was done under ether anesthesia, through an incision to the left of the median line just below the costal margin. The pin, which was located in the cardiac end of the stomach high up, was manipulated to the fundus and carefully closed through the stomach wall. The advisability of stopping treatment at this point was considered, as well as of removing the pin by gastrotomy. Both plans were abandoned in favor of another idea, which had presented itself previous to the time an operation had been decided on. This method was attempted and it was successful. A small stomach tube was passed from the mouth through the esophagus into the child's stomach, and the closed safety pin manipulated into the end of the stomach tube, which was then withdrawn with the safety pin in it. After this the abdominal wound was closed in layers without drainage. The wound healed by primary union,



Open safety pin in cardiac end of stomach after barium sulphate meal

and the skin sutures were removed on the seventh day. The child made an uneventful recovery.

There are two unusual things about this case.

First, it is unusual to have a child so young swallow a safety pin.

Second, the simple method of closing the safety pin through the stomach wall, then of passing the closed safety pin into the stomach tube, and of removing the pin was accomplished without opening the stomach.

502 Myers Building

A DRESSING FOR HEMATOMA OF THE EAR

L. K. FERGUSON, M.D., PHILADELPHIA

Associate in Surgery, University of Pennsylvania School of Medicine

Hematoma of the ear is seen very frequently at the Surgical Out-Patient Department, and at the Student Health Service of the University of Pennsylvania, where wrestlers and boxers of the university squads are cared for. These hematomas are often treated soon after they appear and while the blood is still liquid, so that aspiration is an easy procedure in most



View of dressing from behind, showing how the cast encloses the auricle.

cases. The more difficult part of the treatment is the application of a pressure dressing that will prevent recurrence. Although textbooks state that a snug bandage over the ear is sufficient, my experience has been that recurrence almost invariably takes place with such treatment. Some authors have suggested the use of plaster molded pressure bandages. These have been found to be cumbersome, and many students are content to have a cauliflower ear rather than to wear a large dressing that surrounds the head.

A dressing is here presented that has proved successful in preventing recurrence and is neither cumbersome nor particularly unsightly. After aspiration of the hematoma, cotton, soaked in collodion, is molded to the auricle so as to fit the depressions in the ear. While the collodion is drying, pressure over the area of the hematoma is maintained by means of a hairpin, which may be bent as shown in the illustration. The hairpin may be removed after twenty-four hours, the dry collodion forming a firm pressure dressing, which may be removed in five or six days.

326 South Nineteenth Street

CHRONIC ACETANILID POISONING

LUTHER C. FISHER, M.D., MINNEAPOLIS

Two decades ago, acute and chronic acetanilid poisoning from the use of various "headache powders" was quite common. Following the elimination of the more dangerous proprietary preparations from the market and the widespread propaganda against their use generally, instances of acetanilid poisoning have greatly diminished. Nevertheless, an occasional case of acute poisoning is still encountered resulting from an overdose or following a usual dose in patients with an idiosyncrasy for the drug. Chronic poisoning is apparently rarer and for this reason the following case is reported.

The continued use of medicaments containing acetanilid or acetphenetidin may result in the habituation of the patient to the drug. Sudden discontinuance of the drug is frequently followed by "withdrawal" symptoms. The habituation, the

From the Department of Medicine, University Hospital, University of Minnesota Medical School

clinical signs and symptoms and laboratory characteristics of the poisoning, and the subsequent withdrawal symptoms are exemplified in the case here reported

REPORT OF CASE

R H, a man, aged 47, visited the outpatient department of the University Hospital, June 5, 1928, complaining of cough, expectoration, pain in the left chest, headache, weakness and weight loss of 20 pounds (9 Kg) in a month. Fine rales were present over both apexes. He was sent to a tuberculosis sanatorium, where tubercle bacilli were found in the sputum. He gradually improved and was discharged a year later, in June, 1929.

He was observed in the outpatient department but finally entered the University Hospital in September, 1929, for tiredness, weakness, loss of the weight that had been regained at the sanatorium, cough with expectoration of from 60 to 90 cc. of sputum each day, and dyspnea on exertion. The patient was markedly cyanotic and stated that the blueness had been present for three years, although it was not particularly striking until the time of the present admission. The only abnormal finding was the presence of rales in the bases of both lungs. Roentgen examination revealed healed tuberculosis in both apexes and minimal bronchiectasis in the left base. He was discharged and treated as an outpatient, with injections of iodized poppy-seed oil.

In November, 1929, during a reexamination at the tuberculosis sanatorium, a physician noted "flushed features with a reddish cyanotic countenance." During the following two years he visited the outpatient department from time to time and finally reentered the hospital, Sept. 23, 1932, in the medical service of Dr H A Reimann. At this time he was almost unable to walk because of extreme weakness. He coughed and raised from 30 to 60 cc of sputum daily. Headache, which had been severe, became worse and was almost constantly present. There was a marked tendency to sleep. He responded very slowly to questions and appeared to be confused at times. Anorexia, epigastric discomfort after eating, constipation and frequency of urination were present.

On physical examination the most striking feature was the marked cyanosis of a peculiar violaceous or lavender hue, of the face. The color was especially well shown in the infra-orbital regions, mucous membranes, nipples and finger nails. There was weakness of all muscles, coarse tremor of the tongue and hands and some incoordination. Examination of the heart and lungs gave negative results. His mouth temperature varied from 35.5 C (96 F) to 36.7 C (98 F), seldom reaching 37 C (98.6 F). The pulse rate varied from 60 to 100 but usually hovered about 78. The respirations varied from 14 to 20 per minute but usually were 18 per minute.

The laboratory data revealed urine, normal hemoglobin, 80 per cent (Sahl), erythrocytes 4,300,000, leukocytes 12,600, neutrophils 90 per cent, lymphocytes 8 per cent, eosinophils, 2 per cent, blood platelets 177,000, icterus index 8 units and the nonprotein nitrogen 37 mg. The carbon dioxide combining power of the plasma was 51 volumes per cent. Roentgen examination revealed healed tuberculosis but no evidence of bronchiectasis after injection of iodized poppy seed oil. An electrocardiogram showed no abnormalities.

The presence of striking cyanosis in the absence of evidence of heart or lung disease suggested the possibility of some type of aniline drug poisoning. On questioning the patient admitted taking anacin tablets (each tablet containing 0.2 Gm or 3 grains of acetphenetidin) in large numbers over a long period of time. A few days later he volunteered further information of taking bromoseltzer (each gram containing 0.042 Gm of acetanilid) continually. The habit began twenty years ago in 1912 when he used bromoseltzer for occasional headaches. The headaches increased in severity and frequency so that by 1917 he took a table-spoonful two or three times a day. In 1926 it was noted that his color was not good and his physician warned him about the habit. Despite the advice he began taking five or six anacin tablets a day when bromoseltzer was not available but the tablets failed to satisfy the craving. When he applied to the outpatient department in 1928 he was apparently taking from 90 to 180 Gm of bromoseltzer (175 to 350 Gm of acetanilid) daily. During hospitalization at the sanatorium the drug was not available and the craving

which developed passed off in a few weeks. The patient apparently made no mention of the condition. After discharge, the drugs were resumed, and at the time of the present admission the estimated intake was 200 Gm of "bromoseltzer" (acetanilid, 84 Gm) and from twelve to twenty-four "anacin" tablets (acetphenetidin, from 24 to 48 Gm) daily.

After a diagnosis of chronic acetanilid and acetphenetidin poisoning had been made, spectroscopic examination of the blood revealed the presence of methemoglobin in large amounts (Dr C O Hansen). The blood itself was of a peculiar dark brownish color.

A week after hospitalization, after the drugs had been discontinued, marked mental symptoms gradually developed. The patient became confused, disturbed and irrational, and soiled his clothing with urine and feces. He developed ideas of reference and persecution, but no restraint was necessary. In the course of a week or two the mental symptoms gradually disappeared. Two months after the withdrawal of the drugs he felt much better, gained 15 pounds (6.8 Kg) and was stronger. The tremor had disappeared. There were no headaches and the cyanosis, although still present, was greatly diminished.

COMMENT

The case illustrates the enormous amounts of acetanilid and acetphenetidin to which a patient can become accustomed. Webster¹ states that, in susceptible individuals, death from acute poisoning may occur after the intake of from 0.3 Gm (5 grains) to 0.6 Gm (10 grains) of acetanilid, but recovery has followed doses as large as 28 Gm (420 grains). Doses of 0.3 Gm, 0.6 Gm and 1 Gm of acetphenetidin have proved fatal. My patient was apparently taking as much as 8 Gm of acetanilid and 3 Gm of acetphenetidin daily over a long period. The typical symptoms and signs of chronic poisoning developed, namely, cyanosis, weakness, subnormal temperature, mental and physical debility, and methemoglobinemia. Typical withdrawal symptoms appeared when the drugs were withheld. Recovery followed.

An interesting feature of the case is that the cause of the cyanosis was overlooked so long and by so many physicians. The cyanosis was presumably attributed to tuberculosis at one time and subsequently to nonexistent bronchiectasis. It appears to be important to inquire into the drug habit of any patient exhibiting marked or peculiar general cyanosis in the absence of demonstrable pulmonary or cardiovascular disease.

ARSENIC POISONING CAUSED BY A MOUTHWASH CONTAINING SOLUTION OF POTASSIUM ARSENITE

HARRY LOWENBURG MD AND MEYER NAIDE MD
PHILADELPHIA

D G, a white girl aged 10 years was admitted July 20, 1932 with Vincent's infection of the mouth of eleven days' duration. Symptoms of note prior to admission included anorexia, fetor oris, fever and anuria. Bitter complaint of vomiting and gagging continuous nausea and inability to retain anything even water, was made by the mother. The patient had received an injection of Thio-Bismol (sodium bismuth thio glycollate) into the buttock, a local application of neoarsphenamine (0.4 Gm in aqueous solution), and the following mouthwash:

1) Vinis specueuanae	Oz. ii
Glycerin	Dr. iv
Liq. arsenicalis (Fowler's solution) q. s.	ad Oz. iv

On admission the temperature, pulse and respiration were 98.6, 100 and 25 respectively. The blood pressure was 105 systolic, 70 diastolic. The prominent features on examination were a shallow lingual ulcer, moderate cervical lymphadenopathy and right-sided abdominal tenderness. The heart and lungs presented no abnormalities. There was no edema, and the evidences were normal.

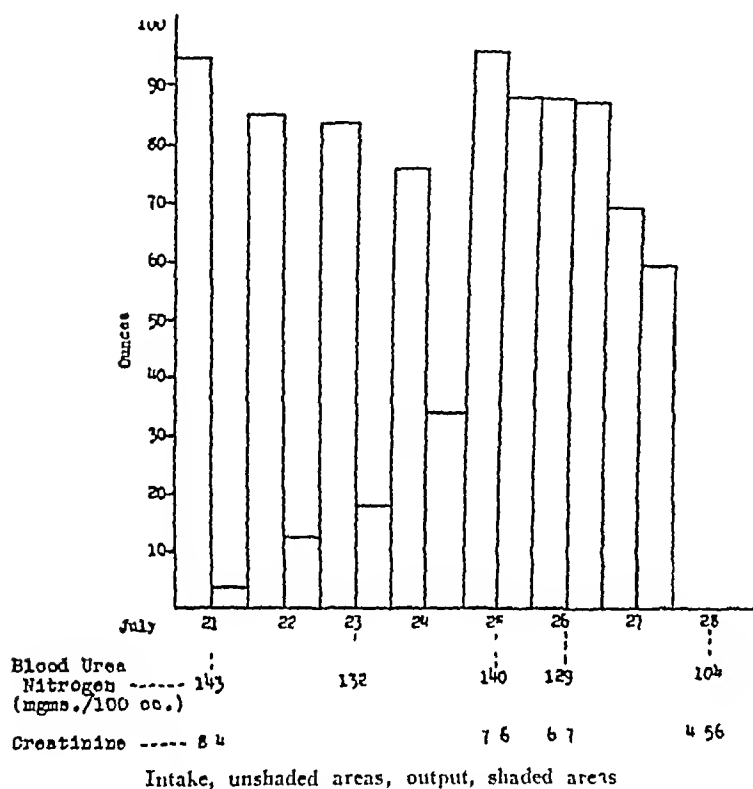
The admission diagnoses were (1) Vincent's infection and (2) anuria (of unknown origin).

¹ Webster R W. *Legal Medicine and Toxicology*. Philadelphia: W B Saunders Company, 1930, p. 82.
From the Pediatric Service of Dr Harry Lowenberg, at the Mount Sinai Hospital.

On the day of admission the blood examination showed 80 per cent hemoglobin, 4,520,000 red cells and 22,400 white cells, of which 87 per cent were polymorphonuclears, 11 per cent small monocytes and 2 per cent large monocytes. The blood urea nitrogen was 143 mg per hundred cubic centimeters, creatinine 8.4 and blood sugar, 122. The Wassermann reaction (Kolmer and Kahn) was negative.

As no urine had been voided for three days, the patient was catheterized July 21, and the bladder was found to be empty. Twelve hours later another catheterization yielded 4 cc of turbid urine containing a cloud of albumin. In searching for the etiology of the anuria, one of us (H. L.) suggested that the drug injected into the buttock prior to admission might have been an arsenic compound which was given for the Vincent's infection. (At this time the previous medication was still unknown to us.)

July 22 the presence of arsenic was demonstrated in the urine by the Gutzeit test. This was corroborated the following day in another specimen of urine. While this procedure led to a correct solution of the problem, the source of the arsenic was found to be elsewhere.



Treatment at this time included the forcing of fluids by mouth, hypodermoclysis (500 cc of physiologic solution of sodium chloride every eight hours), 50 per cent dextrose and 10 per cent magnesium sulphate intravenously, hot applications, and alkalis internally. The use of sodium thiosulphate was considered, but the duration of the illness and the rapid subjective recovery of the patient led us to believe that it was unnecessary.

The vomiting ceased after twenty-four hours in the hospital and the clinical condition improved gradually. The blood urea nitrogen had fallen from 143 mg to 129 by July 26, and to 104 mg July 28. On the latter date, arsenic could no longer be demonstrated in the urine. The urinary output improved so strikingly, as shown in the chart, that, in spite of the evident urea retention, the patient was discharged to the care of her private physician. The patient was entirely free of symptoms six weeks later.

COMMENT

This case, as briefly outlined in sequence, was not actually solved with such apparent simplicity. It required a detailed correspondence with physicians in a distant city, who had treated the patient originally, to determine the possible relationship between the anuria, the vomiting, the arsenic present in the urine and previously administered drugs.

The Thio-Bismol (Parke, Davis & Co.), the drug that had been injected into the buttocks, contains no arsenic in its formula, this fact being corroborated by a negative Gutzeit test.

It was further learned that the neoarsphenamine had been well diluted and applied lightly to the gums only once.

The solution of potassium arsenite in the mouth wash contained $7\frac{1}{2}$ grains (0.47 Gm) of arsenic trioxide. Holland¹ reports a case of arsenic poisoning which proved fatal after a quantity of solution of potassium arsenite that contained only 2 grains (0.13 Gm) of arsenic trioxide had been taken.

SUMMARY

- 1 Arsenic poisoning may follow the use of easily absorbable preparations of arsenic when they are used as mouth washes.
- 2 The practice is pernicious and unnecessary.
- 3 Equally good results are attained in Vincent's and other mouth infections by the use of simple cleansing and oxidizing agents.
- 4 Arsenic poisoning should be suspected in all cases of persistent vomiting, especially when associated with anuria and a history of mouth infection.
- 5 The high urea nitrogen was probably more relative (to blood volume) than absolute and was due to blood concentration and probably did not represent an actual increased retention. Only in this way can be explained the absence of drowsiness, coma and convulsions.

325 South Seventeenth Street—Mount Sinai Hospital

A CASE OF MENSTRUAL ALLERGY

W. T. HARRISON, M.D., WASHINGTON, D. C.
Surgeon, United States Public Health Service

This case is reported in view of the unusual nature of the allergy and the possibility that similar instances of hypersensitivity may be fairly common.

Mrs. C., white, aged 23, seen Feb. 12, 1932, complained of giant urticaria since the preceding November. The lesions were from 4 to 8 inches in diameter and occurred chiefly on the face and extremities, but appeared on any part of the body. She was sometimes free for as long as two weeks, again she would have two or three attacks in twenty-four hours. At the age of 16 she had one attack after eating strawberries. She was married at 18 and had her first child at 21, and a second child eighteen months later. Labor was normal. The menses reappeared when the second child was 5 months old and were accompanied by an attack of giant hives. She also noticed local irritation during the menstrual period, so marked that, opposed to her usual custom, she was disinclined to walk for any considerable distance. A maternal aunt had autumnal fever. The patient gave an indefinite history of summer cold during 1931. She had had the usual diseases of childhood.

When tested cutaneously with the common foods and usual pollens of the Washington district, she showed a questionable reaction to coconut and a definite reaction to egg white. Removal of eggs and coconut from the diet and the use of castile soap during an intermenstrual period resulted in complete freedom from hives. The patient was next directed to take daily small increasing doses of egg white, and succeeded in increasing her tolerance so that she could take one egg each day without symptoms. During the succeeding menstrual period, hives reappeared as severe as before and disappeared with the menses, to reappear with the next.

A well worn and washed cotton cloth was used as a menstrual pad and when saturated was extracted for seven days at 7 C in salt solution containing 0.5 per cent phenol. The extract was passed through a Berkefeld filter and 0.05 cc of a 1 in 4 dilution was injected intracutaneously with suitable control. A small wheal with irregular edges, surrounded by a zone of hyperemia, appeared within ten minutes. Five-hundredths cubic centimeter of the concentrated extract was next injected and was followed by a large wheal 2 cm in diameter surrounded by a large erythematous zone and accompanied by heat and itching. One week later, 0.1 cc of the concentrated extract was injected subcutaneously and the patient was observed for fifteen minutes before leaving the

¹ Holland, J. W. Textbook of Medical Chemistry and Toxicology. Philadelphia: W. B. Saunders Company, 1908.

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NUMBER 10

laboratory. Shortly after leaving, the patient noticed some palpitation and difficulty in breathing. Large hives appeared on the back and on the legs during the next hour and persisted for two days. After this quite evident overdose, the extract was diluted 1:10 and the dose reduced to 0.2 cc, then it was gradually increased twice weekly until at the end of two months 2 cc of the concentrated extract could be injected with only local redness and swelling.

Two days after the seventh desensitizing dose (0.5 cc of the concentrated extract) the menses appeared and were accompanied by a severe attack of hives and considerable local edema and irritation. At the end of the period the injections were resumed and by the next menstrual period a dose of 15 cc of the concentrated extract had been given. There were no hives during this menstrual period and only slight local irritation. The injections were continued weekly during the next six weeks, the maximum dose (2 cc) being given and discontinued with instructions to report for additional treatment if hives reappeared. At the last report, three menstrual periods had passed with no hives and no local edema or irritation. Caution is still practiced with regard to the ingestion of eggs, not more than one egg being taken in one day.

The appearance during the menstrual period of generalized hives with local edema and irritation, all of which were relieved by gradually ascending doses of a menstrual extract to which the patient is skin sensitive, seems to incriminate some factor connected with the menstrual material as the allergin responsible for the patient's symptoms. She is not sensitive to her own blood serum or to the serum of one other person.

National Institute of Health

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY OF THE AMERICAN MEDICAL ASSOCIATION HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT
H. A. CARTER, Secretary

HEIDBRINK OXYGEN TENTS, MODELS 32 AND 32R, ACCEPTABLE

The Heidbrink Oxygen Tents, Models 32 and 32R, are manufactured by the Heidbrink Company, Minneapolis. The manufacturer declares that the tents will provide a means of administering oxygen therapy at hospitals or clinics.

The hood of Model 32 is constructed of heavy rubber sheeting rubberized on both sides. The windows are cellulose acetate (not inflammable). There are eight windows in all and they are placed on the four sides of the hood and on the top. The hood is made with an extra long skirt with flares on the corners, and the center panels allow plenty of material for tucking under the mattress. There are two sleeves for passing food, water or other items into the tent. All the seams on the inside of the hood are covered which makes it as nearly air tight as it is possible to construct an enclosure of this kind.

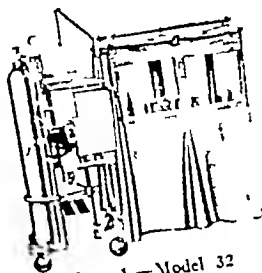


Fig. 1—Model 32

The hood is supported on three spring hangers. The spring hangers prevent the tearing of the material when a sudden strain is exerted. The hangers are mounted on a bar and are movable. The hood is wide enough to cover the full width of the standard hospital bed and can be collapsed to one half this width, thus fitting an infant's crib. When not in use the hood can be collapsed to a 6 inch width for convenient storage.

The hood is mounted on a horizontal bar, which tilts to an angle of 45 degrees. The bottom of the skirt has tabs with eyelets so that the bottom can be luted up. When the entire hood is tilted it can be placed over the patient by one nurse. The tilting bar is equipped with a chain and hook and when tilted to the desired angle it can be fastened there while the apparatus is adjusted to the bed.

The icebox is large and is insulated on top, bottom and all sides. It has a completely removable lid with a soft rubber gasket. When the lid is fastened down by means of the lock arm, it provides a tight seal. The icebox holds 65 pounds of ice. The box is provided with a half inch drain and trap with clean-out plug.

The motor and blower have been designed particularly for oxygen tent use. The motor possesses a low speed. It is mounted completely cushioned in rubber, which reduces vibration, and the low speed precludes motor hum.

The blower is also cushioned in rubber. It is of large capacity and the openings are sufficiently large to avoid any restriction of the circulation. The motor blower unit is controlled by a rheostat of the coil type and possesses many different rates of speed.

The soda lime container is easy to get at and is of the removable basket type, which can be carried to a sink or table for filling or emptying. The soda lime container has a damper by means of which all the circulation can be passed through the soda lime, or any part of it, or the entire circulation can be passed around the soda lime without coming into contact with it.

The oxygen delivery is controlled by a pressure regulator of an approved type having an auxiliary needle valve for fine regulation and a gage to show the pressure in the tank. The delivery of oxygen to the patient is indicated on a sight feed flow meter calibrated from 1 to 15 liters per minute. There is no spring mechanism to get out of order. The regulator has an automatic closing emergency flush valve by means of which the entire tent hood can be quickly flushed with oxygen when the patient is first installed.

The apparatus hood has a 14 inch adjustment up and down, and the elevating mechanism can be operated from either side of the equipment. It is directly below the icebox, and the vertical adjustment range is sufficient to accommodate a patient either sitting up or lying down.

The entire equipment is mounted on a single chassis. It accommodates not only the apparatus but also the tank of oxygen. This chassis has large (5 inch) rubber tired ball bearing casters which contribute greatly to the ease of movement. The chassis is built with a lip to accommodate an auxiliary tank truck so that tanks can be installed or removed by any nurse without lifting.

The tank is retained in place by means of a quick-lock arm which swings open wide to receive the tank and then can be locked against it to hold it securely to the apparatus.

Provision is made on the Heidbrink Oxygen Tent for the addition of an attachment for the controlled delivery of carbon dioxide from a tank.

A combination oxygen and carbon dioxide analysis outfit may be obtained at an additional cost. This apparatus will analyze for both oxygen and carbon dioxide concentration from the same sample of air, and the entire procedure can be accomplished in five minutes.

It is claimed that cooling to below 60 degrees is possible regardless of the room temperature and without using the full capacity of the motor blower, and without the addition of rock salt.

The humidity is automatically controlled to desirable limits and, if the tent hood is tucked in around the patient securely, a 50 per cent or better oxygen concentration can be maintained on the flow rate of between 2 and 3 liters per minute. The complete outfit weighs 220 pounds.

The Heidbrink Model 32R has all the operating features of the Model 32 except that the chassis which carries the large oxygen tank is omitted. The ice chest is not quite so large. The Model 32R weighs 160 pounds.

The Council ran several tests on the Model 32. The investigation substantiated the claims made for the unit. The Council on Physical Therapy declares the Heidbrink Oxygen Tents, Models 32 and 32R, eligible for inclusion in the list of accepted devices.

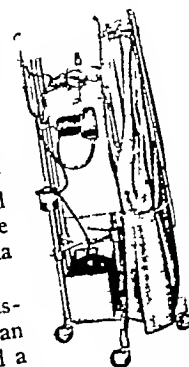


Fig. 2—
Model 32R
(ready for
storage)

Committee on Foods

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION, AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.



RAYMOND HERTWIG, Secretary

BLUE BAR BRAND TOMATO JUICE

Packer—Tugwell and Wiseman, Inc., Modeltown, Niagara County, N. Y.

Description—Canned tomato juice with added salt, retains in high degree the vitamin content of the raw juice.

Manufacture—The tomatoes are grown from a special variety of seeds by independent farmers in the Niagara fruit belt between Rochester and Niagara Falls, N. Y. The harvested vine ripened tomatoes are delivered immediately to the cannery, where they are sorted, washed by agitation in running water, and inspected on endless belts, bruised, green or mushy fruit is discarded. The sound tomatoes are scalded and peeled by hand, undesirable fruit is discarded. The peeled tomatoes, whole or parts, are packed in cans. Juice obtained from this operation provides part of the juice for the canned tomato juice.

Juice is obtained also from whole or parts of the peeled tomatoes by expression by machine consisting of a spiral within a fine cylindric screen. The juice from the several sources is delivered to a filling machine from which it flows into cans. A pellet of salt is added to each can. The filled cans are processed at 82 C, the air incorporated in the juice is substantially removed during the process. The cans are sealed, very little air head space being permitted. The sealed cans are autoclaved for twenty minutes at approximately 100 C and immediately cooled. The complete time between the delivery of the tomatoes and the final processing is about thirty minutes.

Analysis (submitted by manufacturer) —

Moisture	93.9	per cent
Total solids	6.1	
Ash	1.2	
Sodium chloride (NaCl)	0.8	
Fat (ether extract)	0.3	
Protein (N X 6.25)	0.9	
Reducing sugars as invert	3.2	
Sucrose (copper reduction method)	0.0	
Crude fiber	0.2	
Carbohydrates other than crude fiber (by difference)	3.5	
Titratable acidity as citric acid	0.4	
pH	4.3	
Artificial color (aniline colors)	absent	

Calories—0.2 per gram, 6 per ounce

Micro-Organisms (analysis submitted by manufacturer) —

Bacteria per cc dextrose agar medium,	
2 days at 37 C	0
5 days at 20 C	0
"Molds per cc synthetic agar medium,	
2 days at 37 C	0
5 days at 20 C	0
"Molds per cc, anaerobic meat broth tubes,	
7 days at 37 C	0
"B coli per cc	0"

Vitamins—Precautions are taken during the manufacture to protect efficiently the natural vitamin content.

Claims of Manufacturer—This tomato juice is a good source of vitamins A and B and an excellent source of vitamin C, for infant feeding and general table use.

WHITE BILLOWS FLOUR (BLEACHED) MARECHAL NEIL FLOUR (BLEACHED)

Manufacturer—Collin County Mill & Elevator Company, McKinney, Texas

Description—An "all purpose" patent flour milled from hard and soft wheats, bleached.

Manufacture—Selected soft and hard wheats are cleaned, washed and tempered by essentially the same procedures as described in THE JOURNAL, June 28, 1932, page 2210. Chosen flour streams are blended, and bleached with a mixture of

benzoyl peroxide and calcium phosphate (1 part to 50,000 parts of flour) and with nitrogen trichloride (one-ninth ounce per 196 pounds).

Claims of Manufacturer—The flour is designed for general home baking.

BARTELDES TENDER NUTRITIOUS TASTY POP CORN

Manufacturer—The Barteldes Seed Company, Lawrence, Kan.

Description—Popcorn in sealed tins and in sacks.

Manufacture—Most of the supply of the corn is grown under contract from selected seed. The matured corn is husked and gathered in October. Some of the gathered corn is brought directly to the warehouse and some is stored in bins or cribs on the farms for later delivery. The corn ears at the warehouse are immediately shelled or stored in rat proof cribs. Before shelling, the ears are inspected and imperfect ears discarded, only thoroughly mature ears in good popping condition are shelled. The shelled corn is run through cleaning machinery and graded to provide a uniformly sized product, an air blast removes light kernels and undesirable material. The prepared pop corn is sealed in tins or packed in bags.

Analysis (submitted by manufacturer) —

Moisture	11.1	per cent
Ash	1.4	
Fat (ether extraction method)	3.8	
Protein (N X 6.25)	11.5	
Crude fiber	2.0	
Carbohydrates other than crude fiber (by difference)	70.2	

Calories—3.6 per gram, 102 per ounce

Claims of Manufacturer—A ready to pop popcorn.

DAVIDSON'S PRIZE SWEDISH RYE BREAD (SLICED)

Manufacturer—Davidson Baking Company, Portland, Ore.

Description—A rye bread made by the sponge dough method (method described in THE JOURNAL, March 5, 1932, p. 817) prepared from patent wheat flour, water, "clear" wheat flour, rye flour (two-thirds dark and one-third light rye), syrup, shortening, yeast, salt, rye flavor (combination, in syrup form, of ground caraway and anise seeds with small amount of licorice), malt syrup, and yeast foods containing buttermilk, calcium phosphate and ammonium tartrate, and calcium sulphate, ammonium chloride, sodium chloride and potassium bromate.

Analysis (submitted by manufacturer) —

Moisture (entire loaf)	35.5	per cent
Ash	1.1	
Fat	1.5	
Protein (N X 6.25)	10.4	
Crude fiber	0.5	
Carbohydrates other than crude fiber (by difference)	51.0	

Calories—2.6 per gram, 74 per ounce.

Claims of Manufacturer—A rye bread for all table uses.

JEWEL COCOA

Distributor—Jewel Tea Co., Inc., Barrington, Ill.

Description—Cocoa prepared from partially defatted cacao nibs.

Manufacture—The cocoa is purchased on specifications on the basis of flavor, appearance, and conformity with food law requirements. Deliveries are examined by the company laboratory. The cocoa is automatically packed in tins.

Analysis (submitted by manufacturer) —

	per cent	Moisture, fat free basis
Moisture	3.9	
Total ash	4.5	6.1
Water soluble ash	1.6	2.2
Ash insoluble in acid	0.1	0.2
Alkalinity of water soluble ash (cc N/1 acid per 100 grams)	19.3	26.4
Fat (ether extract)	23.1	
Protein (non caffeine and non theobromine N X 6.25)	15.2	20.8
Crude fiber	5.0	6.9
Theobromine	1.38	1.89
Caffeine	0.54	0.72
Carbohydrates other than crude fiber (by difference)	46.4	63.6

Calories—4.5 per gram, 128 per ounce

Claims of Manufacturer—A cocoa for table use.

DAD'S ORIGINAL SCOTCH OATMEAL COOKIES

Manufacturer—Dad's Cookie Company, Memphis, Tenn

Description—Cookies prepared from sucrose, wheat flour, rolled oats, shortening, water, raisins, sodium bicarbonate, salt, cinnamon, vanilla flavor and refined cottonseed oil

Manufacture—Sugar, vanilla flavor, refined cottonseed oil, cinnamon and raisins (ground) are thoroughly mixed (creamed) with the shortening, the oats and water are mixed in, the sugar, soda, salt and flour are thoroughly worked in. The resultant dough is cut by machine (cookie cutter) into cookies weighing 8 ounces to the dozen after baking. The cookies drop on pans and are baked at from 190 to 204 C for eighteen to twenty minutes. The cookies are cooled, packed in boxes and distributed by the company's salesmen

Analysis (submitted by manufacturer) —

	per cent
Moisture	6.9
Ash	1.8
Fat (ether extract)	15.4
Protein (N \times 6.25)	6.3
Reducing sugars as invert sugar	1.6
Sucrose (copper reduction method)	16.2
Crude fiber	0.4
Carbohydrates other than crude fiber (by difference)	69.2

Calories—4.4 per gram 125 per ounce.

**HEINZ STRAINED GREEN BEANS
(Already Cooked Without Salt or Sugar)**

Manufacturer—H J Heinz Company, Pittsburgh

Description—Canned comminuted and strained cooked green beans retaining in high degree the mineral and vitamin content of the natural product, no added sugar or salt, the coarser fibrous portion is removed

Manufacture—Selected stringless variety green beans are picked at the stage of growth when the bean seed is but slightly developed or when the beans consist mainly of the green tender pod. The beans are sorted washed and inspected, blemishes and overmature or otherwise unsuitable beans are removed. The green beans are placed in a closed cooker and the subsequent processing and packing are essentially the same as described for Heinz Strained Spinach (THE JOURNAL, Feb 25, 1933 p 577)

Analysis (submitted by manufacturer) —

	per cent
Moisture	92.7
Total solids	7.3
Ash	0.5
Sodium chloride (NaCl)	0.03
Fat (ether extract)	0.1
Protein (N \times 6.25)	2.2
Reducing sugars as invert before inversion	None
Reducing sugars as invert after inversion	2.4
Sucrose	2.3
Crude fiber	0.8
Carbohydrates other than crude fiber (by difference)	3.7
Calcium (Ca)	0.05
Phosphorus (P)	0.02
Iron (Fe)	0.001

Calories—0.2 per gram 6 per ounce

Claims—The method of preparation efficiently protects the natural vitamin values. The strained beans is a good source of vitamins A, B and G and a fair source of C.

Claims of Manufacturer—For table use of strained green beans but especially intended for infants, children and convalescents and for special smooth diets. Only warming is required for serving. The natural mineral and vitamin values are efficiently retained.

DROMEDARY VELVA DATE

A New Preserve Made from Finest Dromedary Dates

Manufacturer—The Hills Brothers Company, New York City

Description—Date preserves prepared from water, dates, invert sugar, honey and salt

Manufacture—The dates, invert sugar, water and salt are boiled together for about five minutes. The mixture is run through a tomato masher machine to remove pits and skins. The resultant material is concentrated in an open kettle to a desired consistency (74 per cent solids), cooled and admixed

with honey, the mixture is whipped in a mayonnaise mixer until it has attained a definite color and consistency. The final preserve is filled into glass jars which are capped under "partial vacuum" (15 inches of mercury) and processed for twenty minutes at 79 C.

Analysis (submitted by manufacturer) —

	per cent
Moisture	21.3
Ash	0.6
Fat (ether extract)	0.3
Protein (N \times 6.25)	0.9
Reducing sugars as invert sugar	59.8
Sucrose (copper reduction method)	7.6
Crude fiber	1.2
Carbohydrates other than crude fiber (by difference)	75.7

Calories—3.1 per gram 88 per ounce.

CANOVA BRAND PEANUT BUTTER

Manufacturer—Maury Cole Company, Memphis, Tenn., Louisville, Ky., Dallas, Texas, Atlanta, Ga., and Norfolk, Va.

Description—Peanut butter composed of ground peanuts seasoned with salt

Manufacture—Spanish and Virginia shelled peanuts are roasted and cooled, the skins and embryos are removed by machine. The kernels are spread on a continuous belt, and any faulty or undesirable kernels and materials are removed. Definite proportions of the Spanish and Virginia kernels are mixed, salt is automatically added in a definite proportion, and the nuts are ground. The resulting peanut butter is packed in jars, which are sealed in a "vacuum" machine.

Analysis (submitted by manufacturer) —

	per cent
Moisture	1.7
Ash	2.2
Sodium chloride (NaCl)	0.5
Fat (ether extract)	48.3
Protein (N \times 6.25)	31.4
Reducing sugars as invert sugar before and after inversion	3.6
Sucrose	0.0
Crude fiber	2.0
Carbohydrates other than crude fiber (by difference)	14.4

Calories—6.2 per gram 176 per ounce

**FEDERAL HOMELIKE BREAD
(Sliced and Unsliced)**

Manufacturer—Federal Baking Company, Winona, Minn.

Description—A wheat bread made by the sponge dough method (method described in THE JOURNAL, March 5, 1932, page 817), prepared from patent flour, water, sweetened skimmed condensed milk, lard, salt, sucrose, malt syrup, yeast and a yeast food containing calcium sulphate, ammonium chloride, sodium chloride and potassium bromate.

Claims of Manufacturer—Conforms to the United States Department of Agriculture definition and standard for white bread.

FISHER'S FARINA

Manufacturer—The Fisher Flouring Mills Company, Seattle.

Description—Purified wheat middlings or endosperm, milled from hard red Montana, Washington and Idaho wheats.

Manufacture—The wheat is cleaned, washed, scoured, tempered and milled. The middlings or farina taken from the first break stock is bolted, passed through purifiers and aspirators, heat treated to destroy any insect infestation, and packed in bags.

Analysis (submitted by manufacturer) —

	per cent
Moisture	10.5
Ash	0.35
Fat (ether extraction method)	0.7
Protein (N \times 5.7)	12.0
Crude fiber	0.2
Carbohydrates other than crude fiber (by difference)	76.2

Calories—3.6 per gram 102 per ounce

Claims of Manufacturer—The farina is almost entirely free from bran or other roughage that may irritate the delicate digestive organs of the infant. It is essentially a carbohydrate food but contains good body building proteins, it forms a smooth breakfast cereal and may be used in many delicious recipes.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, MARCH 11, 1933

THE PARENTAL TRANSMISSION OF VITAMIN A

There is no longer any doubt about the importance of the vitamins for the maintenance of health and well being¹. The study of their specific rôles has been vigorously prosecuted in recent years. The impression is growing that, in contrast to outspoken disorders due to a serious lack of vitamins, there are milder degrees of deficiency which, as McLester has expressed it, may not reach the dignity of disease but nevertheless prevent robust health. The development of an understanding of the functions of vitamins has made it clear that the human organism depends on exogenous sources for these essential food factors. They are not synthesized in the animal body but may be stored there to a varying extent. The problem of the supply of vitamins is thus not merely concerned with the immediate intake in the diet or in some other therapeutic form but also involves the possible availability of reserves in times of unusual stress.

This seems to be particularly true of vitamin A. In their review of the clinical features of vitamin A deficiency, Eusterman and Wilbur² pointed out that until recently the versatility of vitamin A has apparently not been appreciated. A remarkably increasing literature in the last year or two attests its growing importance in the chemistry of food and nutrition, not only in the prevention and treatment of certain ailments of man but, when supplied in liberal proportion, in the maintenance of a satisfactory state of nutrition and a high degree of health and vigor, both in the growing child and in the adult.

The concern about vitamin A thus begins early in life. If the mother passes it on to the offspring in utero, obviously her own resources need to be understood. Later her milk may contain varying amounts of vitamin A that either supplement the store in the infant or represent the chief source of supply in the

early period of growth before other vitamin-bearing foods are available. The possibilities that are involved are quite clear, the facts have for the most part remained in large degree within the bounds of mere conjecture. In a discussion of the transmission of vitamin A from parents to young, Dann³ of the Nutritional Laboratory in Cambridge, England, has noted that there are two ways in which a young mammal may receive an endowment of vitamin A before it is weaned. The vitamin A may pass through the placental barrier into the fetal circulation during gestation, or it may be ingested by the suckling in the colostrum and the milk. Available data concerning this transmission of vitamin A from mother to young are scanty. His own experiments on animals indicate that the vitamin A store of the young cannot be raised by feeding large amounts of carotene, a precursor of vitamin A, to the mother during pregnancy and lactation. Dann concludes that there must be some factor at work limiting quite strictly the amount of vitamin A that can pass through the placental barrier or into the milk.

One naturally inquires whether these observations on animals, notably the rat, may be directly applied to the human mother. The complexity of the placenta varies from species to species, for example, in man and the rat (having a hemochorial placenta) the maternal and fetal bloods come into much more intimate contact than in less highly developed forms. Dann believes that as man and the rat both possess placentas of the same type it may be assumed that the relative importance of the placenta, colostrum and milk for the transmission of vitamin A from mother to young will be similar for the two species. On the basis of this assumption, Dann concludes that the best way of applying vitamin A therapy with the object of giving the child a reserve of vitamin A is to dose it directly. Failing this, the best results may be expected to follow from giving the mother regular fairly high doses of vitamin A during the period of suckling. To give the mother vitamin A during pregnancy will not affect the vitamin store of her child to any extent.

THE ERYTHROCYTE SEDIMENTATION RATE IN DISEASE

In spite of the many studies on the rate of erythrocyte sedimentation, the theory behind the variations in the rate remains clouded. The fundamental basis for this phenomenon, as in the Wassermann reaction, may even remain hidden long after the practical applications have become well understood. It seems to be clear that the normal variation in the rate of red blood cell sedimentation, when tested by any one of several methods, is not great. With the exception of certain physiologic states, such as menstruation and pregnancy, the limits of normal are fairly well defined. The disturbance in,

¹ Present knowledge in this field of study was summarized in the series of articles on vitamins published in THE JOURNAL from June 4 to Aug. 6, 1932.

² Eusterman, G. B., and Wilbur, D. L. Clinical Features of Vitamin A Deficiency, J. A. M. A. 98: 2054 (June 11) 1932.

³ Dann, W. J. The Transmission of Vitamin A from Parents to Young in Mammals, Biochem. J. 26: 1072, 1932.

the stability of the blood that occurs in certain diseases does not seem to be specific. It does appear, however, according to some observers, to parallel with considerable accuracy the degree of activity of the disease.

The performance of this relatively new laboratory procedure is simple, whether by the methods of Westergren or Cutler or by the method of Linzenmeir. The first two methods depend on observing the distance to which the erythrocytes have settled at stated periods of time. The Linzenmeir method differs from the other methods only in recording the time taken for the cells to settle down to a certain point in the calibrated tube. These methods have been checked against one another and have been found to be perfectly comparable. It is therefore safe to allow the choice of method to rest with individual preference, though, for the sake of uniformity, something is to be said for the Cutler method as that most commonly used in this country.

The blood sedimentation test has been used widely already, especially in such conditions as tuberculosis and gynecologic infections. As a routine laboratory procedure supplementary to the more established methods, Cutler¹ feels that the test serves two useful purposes. The first of these is as a diagnostic lead. He feels that it may indicate the presence of serious disease often before it can be recognized on the basis of symptomatology, physical examination or other routine laboratory measures. As a diagnostic gage the test is possibly more accurate in estimating the intensity of disturbance than even fever, the pulse rate or the leukocyte count. If the claims such as those of Cutler continue to be borne out by careful observation and analysis, as has been generally true to the present, a method of inestimable importance has been added to the armamentarium for the study of disease. Thus the difficult and treacherous problem of prognosis in some diseases may be made easier. Also, as a method for estimating the effects of treatment the sedimentation test may prove either a boon or a boomerang.

In another study of the sedimentation test in various diseases, Vickers and Duryee² using the Linzenmeir method, corroborate in general the work of Cutler and others. In the studies reported by Vickers and Duryee there was some overlapping of rapid rates in non-inflammatory conditions and of slow rates in inflammatory ones. Nevertheless the average differences of rate between inflammatory and noninflammatory conditions was striking. Thus pyelitis, active tuberculosis and atrophic arthritis, on the one hand, showed active rates, and, on the other, neurasthenia, 'normal' controls and ureteral stone showed slow rates.

There seems little doubt that the blood sedimentation test is of some value in the recognition, prognosis and

course of certain systemic diseases. The problems concerning this test that remain are important and manifold. Undue enthusiasm should be tempered by the knowledge that many facts connected with its interpretation remain to be elucidated. It is probable that this test will go through the usual cycle of enthusiastic reception and general use before finding its ultimate place as a laboratory procedure of unquestioned but restricted value.

POSTPRANDIAL THIRST

The ability of the normal body to maintain the relative constancy of its fluid matrix has attracted the attention of physiologists since the days of Claude Bernard. Recently, Cannon¹ has written on the mechanisms, as far as they are known, by which the organism preserves its chemical and physiologic equilibrium. Should the blood sugar fall below a critical level, the sympathicosuprarenal apparatus operates to provoke glycogenolysis. If metabolic products are thrown rapidly into the blood stream, as during exercise, the heart, lungs and kidneys respond, and, by rushing oxygen and nutriment to the involved tissues and excreting the waste products, restore the body quickly and efficiently to its normal state. The discomforting sensations of hunger and thirst act as sentinels to give warning of the need for nourishment and are thus considered essential features of the general phenomenon of homeostasis, or the ability of the body to resist change.

Thirst merits especial attention as a factor enabling the organism to maintain its fluid content, and, hence, its metabolic functions. The detailed aspects of water metabolism have been minimized in many treatises on nutrition, probably because an excess intake of water does not appear to be harmful, and under ordinary conditions the daily requirements are satisfied with little attention on the part of the subject. The watery nature of the tissues, however, and the magnitude of the fluid interchanges indicate the importance of water in the body. The daily volume of fluid secreted into the digestive tract, for example, has been estimated by Rowntree to be about 8 liters, or approximately twice the volume of the blood plasma. Moreover, the internal movements of water involve greater quantities than are daily consumed in food and drink combined. Yet chemical analysis of the blood in health reveals only temporary and comparatively minor alterations in its composition. As soon as the tissues need water there occurs a sensation of dryness and stickiness in the mouth. A mild degree of thirst is experienced and is satisfied almost subconsciously several times each day.

The physiology of thirst has been largely clarified by the investigations of Cannon, whose conclusions have been widely accepted. The current theory cor-

1. Cutler, J. W. The Practical Application of the Blood Sedimentation Test in General Medicine. *Am. J. M. S.* 153: 643 (May) 1932.

2. Vickers, D. M. and Duryee, Ruth. Sedimentation Rates of the Erythrocytes in General Disease. *J. Lab. & Clin. Med.* 15: 269 (Dec) 1931.

Cannon, W. B. The Wisdom of the Body. New York: W. W. & Co. 1932.

relates thirst with a diminished secretion of saliva and other fluids that serve to moisten the mouth and pharynx. With this view the recent investigation of Gregerson and Cannon² are in harmony. These investigators observed that dogs in which the salivary glands had been removed drank no more water than normally, apparently because secretions of the nasal and buccal epithelium sufficed to prevent drying of the mouth and throat. When placed in a room warm enough to cause panting, however, the dogs that had been operated on drank considerably more water than normal animals similarly exposed. The supposition is made that the dog drinks because it needs water and the immediate stimulus is a dry mouth and throat. The data are particularly striking because the subjective factor, which would make observations on persons difficult to interpret, is avoided in these animal experiments.

Further studies³ of the drinking habits of the dog permitted some interesting inferences to be drawn regarding the general nature of thirst. The experimental animals consumed all their water within a few hours after eating regardless of the time of the meal. When water was not made available within this period but was freely offered later, there was a marked reduction in the twenty-four hour intake. The explanation advanced by the Boston investigators is that the after dinner thirst is in response to the drain on the fluid content of the tissues brought about by the copious secretion of digestive juices. This need for water is temporary in that it may be partially or wholly alleviated by the reabsorption of fluids from the alimentary tract.

As a recent article⁴ on the rôle of water in nutrition has stressed, the fluid requirements may be calculated as readily as it is possible to estimate the energy quota. For ordinary purposes it has generally been regarded that a liberal allowance is afforded by 1 cc. of water, from all sources, for each calory of energy. More elaborate computations are involved in determining the irreducible minimum of water when it is desired to limit the intake, as in certain phases of the treatment of cases of pituitary disturbances, some edemas, or epilepsy. To calculate the theoretical requirements, allowance is made for the permanent loss of water by the various excretory channels, including the skin, lungs, kidneys and intestine. Gregerson's data indicate that another source of water loss, the temporary withdrawal of fluid to permit the production of the digestive fluids, must also be considered. The need for water in secretory processes has frequently been included in

expositions on the water economy, but from the desire for completeness rather than from any precise information regarding its importance in calculating the requirements. While the postprandial demand for water may not figure in the final elimination of moisture from the body, it represents a considerable drain on the body's supply of fluid. It would be interesting to know whether the thirst following a meal plays any part in the polydipsia that characterizes certain diseases and metabolic conditions. Physiologically, if verified by subsequent investigation, the phenomenon noted by Gregerson might be considered as much a part of the body's response to a heavy meal as, for example, the alkaline tide of the urine.

Current Comment

SERUM AMYLASE

The diagnosis of disorders of the internal organs of the body is in many instances rendered more than usually difficult because the structures involved are not subject to inspection or ready methods of indirect observation. Abnormalities of gastric function can be investigated by withdrawal of the contents of the stomach and by the application of roentgenologic procedures. None of these devices are applicable in equal degree to such organs as the liver and the pancreas. Consequently the clinical diagnostician is continually searching for new solutions of his difficulties. The examination of the blood is of inestimable help. Chemical examination of the blood has won a place for itself in the clinic. It has displaced the older chemical examination of the urine in several directions, such as for the study of the diabetic state. Biochemists are seeking for knowledge of blood components that may have specific relations to the function of organs as sugar and urea do. This helps to explain the attention that has long been devoted to serum amylase. There is general agreement that this enzyme is derived principally, if not entirely, from the pancreas. Obstruction to the outflow of pancreatic juice, rich in amylase, leads to increase in the content of amylase in the serum, and consequently in the urine. According to the latest observations of Zucker, Newburger and Berg¹ at the Columbia University College of Physicians and Surgeons, in New York, there is little positive evidence that amylase from other organs besides the pancreas can affect the serum amylase. Here it differs from serum lipase, which may easily be increased through tissue injury, particularly in the liver. Through mechanisms inherent in the pancreas, the serum amylase may be either raised or lowered. For example, when the ducts of the pancreas are experimentally ligated, there is a progressive rise for several days in the content of amylase in the blood serum. After excision of the pancreas, the serum amylase falls to less than half the normal value and does not recover. Amylase may be introduced into the gastro-intestinal tract in

² Gregerson, M. I., and Cannon, W. B. Studies on the Regulation of Water Intake. I. The Effect of Extirpation of the Salivary Glands on the Water Intake of Dogs While Panting, *Am. J. Physiol.* **102**: 336 (Nov.) 1932.

³ Gregerson, M. I. Studies on the Regulation of Water Intake. II. Conditions Affecting the Daily Water Intake of Dogs as Registered Continuously by a Potometer, *Am. J. Physiol.* **102**: 344 (Nov.) 1932.

⁴ Growth and Development of the Child. Part III. Nutrition (Report of the Committee on Growth and Development, White House Conference on Child Health and Protection), New York, Century Company, 1932, pp. 307-333.

¹ Zucker, T. F., Newburger, P. G. and Berg, B. N. The Amylase of Serum in Relation to Functional States of the Pancreas, *Am. J. Physiol.* **102**: 209 (Oct.) 1932.

large quantities through the advent of saliva The New York investigators have demonstrated, however, that the enzyme is not absorbed from the alimentary tract, hence it cannot affect the evaluation of amylase derived from pancreatic sources Zucker, Newburger and Berg remark that the level of serum amylase can be influenced by a number of factors involving the pancreas No significant change in the serum amylase level has been produced in which the pancreas does not play a dominant part They are inclined to refer all these changes definitely to effects on one of the two mechanisms involved in the external secretory process Whenever outflow or transfer to the intestine is interfered with, the amylase rises This is brought about by mechanical effects, including trauma, or by ether anesthesia. Perhaps these recent observations will help to build a surer foundation for the use of determinations of serum amylase in diagnosis

Association News

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts on Tuesday and Thursday from 9 15 to 9 20 a m (central standard time) over Station WBBM (770 kilocycles, or 389 4 meters)

The subjects for the week are as follows

March 13 Prevention of Blindness I Disease
March 15 Prevention of Blindness II Accidents.

There is also a fifteen minute talk sponsored by the Association on Saturday morning from 9 45 to 10 o'clock over Station WBBM

The subject for the week is as follows

March 18 If We Had Only Known!

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES NEW HOSPITALS EDUCATION PUBLIC HEALTH ETC)

ALABAMA

Bill Introduced—S 1111 proposes that physicians practicing in cities or towns of over 5,000 inhabitants pay the state an annual license fee of \$25 that those practicing in cities or towns of less than 5,000 and more than 1,000 inhabitants pay \$10, and that those practicing in all other incorporated towns pay \$5 Cities or towns of over 5,000 inhabitants are not to be permitted to exact an additional annual municipal license fee in excess of \$12.50 and cities or towns of less than 5,000 and more than 1,000 inhabitants are not to exact an annual municipal license fee in excess of \$5

ARIZONA

Bill Enacted—H 64 providing that nothing in the medical practice act is to prohibit the practice of religion or treatment by prayer has been enacted as Chapter 15 Laws 1933

ARKANSAS

Bill Passed—S 203 proposing to accord hospitals treating persons injured through the fault of other persons liens on all rights of action suits judgments compromises or settlements accruing to the injured persons by reason of their injuries has passed the senate

Bill Introduced—S 301 proposes to accord to physicians nurses and hospitals treating persons injured through the fault

of other persons liens on all rights of action, claims, judgments, settlements or compromises accruing to the injured persons by reason of their injuries

CALIFORNIA

Society News—Dr Nathaniel G Alcock, Iowa City, addressed the Los Angeles County Medical Association, January 18, on "Experience with Transurethral Resection of the Prostate." Dr Hermon C Bumpus, Jr, Rochester, Minn, gave a report of punch operations performed during 1932 at the Mayo Clinic—Speakers before the Alameda County Medical Association in Oakland, January 16, included Drs Paul P E Michael on "Essential Pathologic Changes in Cardiac Disease" and Robert T Sutherland, "Treatment of Cardiac Disease" Dr George F McCleary, London, director of medical insurance activities in England, addressed the association, February 23, on medical economics—The San Francisco County Medical Society was addressed, February 7, by George A L Sarton, Sc.D, associate of the Carnegie Institution, Washington, D C, Hitchcock lecturer in history of science, University of California, on "Influence of Arabic Medicine", Drs Clarence Quinan, "Drum Divination," and Miley B Wesson, "George E Goodfellow, Frontier Surgeon and Soldier, 1855-1910"

Osman Sentenced—According to *California and Western Medicine*, E Osman or "Osmun" was recently sentenced to twenty days in the Los Angeles jail for petty theft. On completion of the sentence, Osman was to have been taken to San Diego to answer to a complaint based on an allegation that he had obtained \$3.99 from each of about fifteen physicians on pretense that their names would appear in a publication called "National Insurance Examiner" THE JOURNAL, Jan 23, 1932, page 324, reported that Osman had been calling on physicians posing as a representative of various insurance companies He stated that he had been delegated to select a medical examiner in each town, his reimbursement consisting of \$1 for each specimen of urine sent to the San Diego Laboratories "The American Institute of Life Research, Inc." is the name noted on the receipt which Osman left with the physician after receiving about \$3.50, which, he claimed, was the fee charged for blanks and containers, to be purchased by the selected examiner

COLORADO

Bill Introduced—H 557, to amend the workmen's compensation act, proposes, in effect, to permit "non-medical doctors" to render the medical treatment which employers must supply injured employees

Society News—Dr Roy P Forbes, Denver, gave a demonstration of the Mantoux test for tuberculosis before the Boulder County Medical Society in Longmont, Dec 8, 1932 and Dr Frank B Stephenson, Denver, spoke on tuberculosis in children—The Crowley County Medical Society at its meeting, Dec 20, 1932, heard a paper by Dr George B M Baker, Rocky Ford, on influenza—Dr William M Bane, Denver, discussed modern methods of treatment of diseases of the eye before the Fremont County Medical Society recently, and Dr James M Shields, Denver, showed photographs illustrating normal and pathologic conditions of the internal eye.—Speakers before the Kit Carson County Medical Society, December 5 at Genoa, included Drs Harold R McKeen and Harold B Henderson, Denver, on treatment of skull fractures and practical points in modern obstetrics, respectively—Dr Charles A Rymer, Denver, talked on "Psychiatry and Mental Hygiene and Their Relations to the Physician," December 7 before the Larimer County Medical Society in Berthoud—A recent meeting of the Otero County Medical Society was addressed by Dr Benjamin F Jackson Fort Lyon, on "Simplified Ophthalmoscopic Examination for the General Practitioner"—A symposium on shock was conducted before the Medical Society of the City and County of Denver, January 17 by Drs Thomas D Cunningham, William W Haggart, William C Black, Jr, and Richard W Whitehead.

CONNECTICUT

Bills Introduced—H 520 and H 769 propose to make hospital records admissible in evidence so far as they relate to the medical or surgical treatment or medical history of persons treated therein but nothing contained in such records which has reference to the question of liability is to be admissible.

Society News—Dr Edward Rist University of Paris France addressed the Hartford Medical Society February 14 on pulmonary diseases—The Waterbury Medical Society was addressed February 9, by Drs Temple S Fay Phila-

delphia, and Charles L. Larkin, Waterbury, on "Cerebral Symptoms in General Practice" and "Common Mistakes in the Diagnosis and Treatment of Diseases of Women," respectively — Dr. John L. Rice, health officer of New Haven, was elected president of the Connecticut Public Health Association at its annual meeting in New Britain, January 26, succeeding Dr. William F. Wild, health officer of Bridgeport.

Tuberculosis Prevention — In a special program of tuberculosis prevention work, sponsored by the New Haven Department of Health and the board of education recently, roentgenograms of the chest were taken of 6,400 children of high school and upper grade ages. Except in the cases of ninety pupils, the cost was paid by the respective parents. The roentgenograms are now being studied by the bureau of tuberculosis, it was reported, and will be returned to the pupils after the family physician has been informed of the results. Among 700 high school children already studied, it was shown that the disease was suspected in 55 per cent, while childhood and adult types were manifest in 32 per cent and 0.4 per cent, respectively.

DELAWARE

Bill Introduced — H. 278, to amend the narcotic drug act, proposes to prohibit the sale of "cannabis indica, cannabis americana, cannabis sativa, loco weed, Canadian hemp, marijuana, marajuana, and all allied drugs of the same botanical family," except on the prescription of a licensed physician, dentist or veterinarian.

Health at Wilmington — Telegraphic reports to the U. S. Department of Commerce from eighty-five cities with a total population of 37 million, for the week ended February 25, indicate that the highest mortality rate (21) appears for Wilmington, and the rate for the group of cities as a whole, 12.3. The mortality rate for Wilmington for the corresponding period last year was 32.9, and for the group of cities, 12.9. The annual rate for eighty-five cities for the eight weeks of 1933 was 12.6, as against a rate of 12.1 for the corresponding period of the previous year. Caution should be used in the interpretation of weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits or that they have a large Negro population may tend to increase the death rate.

FLORIDA

Personal — Dr. Thaddeus S. Troy, Lake City, was appointed chief medical officer for the new veterans' home at St. Petersburg, effective January 1.

New Quarantine Station — Arrangements have been made for the transfer of the Tampa quarantine station at Mullet Key to property located on Gadsden Point, donated by the Tampa chamber of commerce. It was stated that the government had accepted the property to replace the present quarantine station at Mullet Key and would expend about \$100,000 in building and equipment.

Society Sponsors Safety Campaign — The Duval County Medical Society is sponsoring a safety campaign to reduce automobile fatalities in Jacksonville and Duval County. The educational program will be carried on through the radio, the press, motion pictures and messages to civic organizations. Careful driving will be emphasized in the society's messages to the public, according to the *Journal of the Florida Medical Association*.

GEORGIA

Personal — Dr. Daniel M. Bradley, Waycross, has been elected commissioner of health of Ware County — Dr. Webb Conn, Brunswick, has been elected health commissioner for Glynn County.

Bill Introduced — S. 226 proposes to levy an annual occupational tax of \$10 on all practicing physicians. Physicians failing to pay the annual tax are not to practice during the period of their delinquency. No municipal corporation or county may levy an additional occupational tax.

ILLINOIS

Bill Introduced — S. 296 proposes to levy an annual tax on physicians, amounting to 15 per cent of the difference between gross receipts from practice and \$1,200.

Society News — Dr. Joseph W. Larimore, St. Louis, addressed the Adams County Medical Society in Quincy, February 13, on "Differential Diagnosis of Peptic Ulcer." — Speakers before the Pike County Medical Society in Pittsfield, January 26, were Drs. Don W. Deal, on "Nonsurgical

Abdominal Pains", Walter G. Bam, "Diagnosis and Treatment of the Thymus," and Hermon H. Cole, "Streptococcus Empyema." All were from Springfield — Dr. David S. Hillis, Chicago, addressed the Peoria City Medical Society, February 21, on "Diagnosis and Management of Disproportion Between the Head and the Pelvis."

CHICAGO

Dr. Mixer to Give McArthur Lecture — Dr. Charles G. Mixer, Boston, will deliver the ninth Lewis Linn McArthur Lecture of the Frank Billings Foundation of the Institute of Medicine of Chicago, March 24. His subject will be "Meckel's Diverticulum and Its Surgical Significance."

State University Sponsors Program — The following physicians will present a program before the Chicago Medical Society, March 15, under the sponsorship of the University of Illinois College of Medicine:

Frederick H. Falls, Management of Eclampsia and Toxemia
William H. Browne, Use of Anterior Pituitary Prohormone in Menstrual Disorders

Bernard Fantus, Use of Vehicles for Medicine (with demonstration)
Isadore P. Bronstein, Hypothyroidism and Cretinism in Children—Consideration of Special Problems

Memorial Bookshelf — One section of the library of Michael Reese Hospital has been dedicated as a memorial to Dr. Heliodor Schiller, former member of the staff, who died Oct. 20, 1932. Volumes on surgery from Dr. Schiller's library form the nucleus of the section known as the "Schiller Memorial Bookshelf." A bronze plaque has been placed over the section. Contributions from staff members, friends, relatives and patients will provide a fund, the income from which will be used for the purchase of additional books on surgery.

Children Examined for Tuberculosis — Under a plan worked out by the Chicago Tuberculosis Institute and Superintendent of Schools William J. Bogan, the tuberculosis testing of school children in Chicago was begun recently. The test is performed only on children who present a signed statement from their parents authorizing it. The Pirquet skin test is given, roentgenograms will be made of positive reactors and records kept of all cases. When conditions are found which require observation or treatment, parents will be notified and asked that the pupil be placed under the care of a physician. Case records will be available for the information of family physicians. The work was begun in the Lake View High School, and it is expected to continue it in other schools.

INDIANA

Resolutions of Secretaries — A resolution opposing "any form of group hospitalization not fostered by the county medical societies" was adopted at the recent annual secretaries' conference of the Indiana State Medical Association. Another resolution endorsing the minority report of the Committee on the Costs of Medical Care was adopted. Speakers at the session in Indianapolis included Drs. Edward H. Cary, Dallas, Texas, President, American Medical Association, and J. Milton Robb, Detroit, president of the Michigan State Medical Society.

Bills Introduced — S. 139 proposes to repeal the laws relating to the possession and distribution of narcotic drugs and to enact the uniform narcotic drug act. H. 414 proposes to authorize public school authorities to order the examination of school children by licensed physicians and if the examinations disclose the presence of contagious, infectious or communicable diseases to exclude afflicted children from school during the course of such diseases. H. 435 proposes to repeal the law authorizing the sexual sterilization of certain socially inadequate inmates of state institutions. S. 270 proposes to create an independent board of chiropractic examiners and to regulate the practice of chiropractic. Chiropractic is defined as "the science of locating and correcting any interference with nerve transmission and expression." Chiropractors are not to have the right to practice surgery or obstetrics, to prescribe drugs or to administer anesthetics.

IOWA

Tuberculin Testing of Cattle to Be Resumed — Renewed enforcement of the state law for the tuberculin testing of cattle will be carried out in full, beginning March 15. Secretary of Agriculture Murray suspended the testing, February 1, pending action on the Foster bill by the forty-fifth annual assembly of the state of Iowa. The announcement to renew enforcement followed the defeat of the bill by a vote of 80 to 24. Provisions of the bill made tuberculin testing of cattle in Iowa optional rather than mandatory. Since tuberculin testing began in Iowa, 9,963,707 tuberculin tests have been

applied and 207,463 reactors removed, 21,679 of which had generalized cases of tuberculosis. Only 12 per cent of the reactors failed to show visible lesions, from 65 to 70 per cent of them coming from herds in which they were associated with other animals which did show visible lesions. Of the ninety-nine counties in Iowa, seventy-five are already accredited.

Society News—Dr Herbert W. Rathe addressed the Bremer County Medical Society in Waverly, Dec. 14, 1932, on treatment of cardiac failure. At a meeting of the Cerro Gordo County Medical Society in Mason City, Dec. 20, 1932, Dr. Paul A. O'Leary, Rochester, Minn., spoke on general therapeutic problems of syphilis. Drs. Guy P. Reed, Davis City, and Jesse S. Coontz, Leon, addressed the Decatur County Medical Society, Dec. 9, 1932, on basal metabolism and acute infectious diseases, respectively. Speakers before the Page County Medical Society in Shenandoah, Dec. 1, 1932, were Drs. Herbert H. Davis and George P. Pratt, both of Omaha, on "Significance of a Lump in the Breast" and "Pneumonia and Upper Respiratory Infections," respectively. A meeting of the Four County Medical Society (Buena Vista, Cherokee, Ida and Plymouth counties) in Cherokee, Dec. 13, 1932, was addressed, among others, by Dr. Harold E. Farnsworth, Storm Lake, on "Acute Lymphatic Leukemia in Infancy." Dr. Park A. Findley, Des Moines, formerly sheriff of Polk County, has been selected chief of the Iowa State Bureau of Criminal Investigation. Dr. Ernest Kelley, Omaha, addressed the Black Hawk County Medical Society, Waterloo, January 17, on "Multiple Sclerosis and Cerebellar Abscess." Dr. Harold M. Hays, New York, addressed the Linn County Medical Society, March 9, on "Preventive and Alleviating Methods in Treatment of Deafness." Dr. Benjamin L. Knight, Cedar Rapids, gave a paper on "The Gallbladder in Office Practice."

KANSAS

Bills Introduced—H. 728 proposes to permit osteopaths, chiropractors, dentists, chiropodists and optometrists to use the prefix "doctor," provided they add after their names the proper designation of their school of practice. H. 740 proposes to permit all licensed physicians, osteopaths or chiropractors to practice within the confines of any hospital exempt from taxation.

LOUISIANA

Personal—Dr. Lionel L. Cazenavette, who has been in charge of the clinic for nervous diseases at Charity Hospital since November, 1897, was recently appointed superintendent of the City Hospital for Mental Diseases.

Medical School Approved—At the business meeting of the Council on Medical Education and Hospitals of the American Medical Association in Chicago, February 12, the Louisiana State University Medical Center was approved for class A rating. Dr. Arthur Vidrine, superintendent of Charity Hospital, is dean of the school, which was established in 1931.

Dr. Kostmayer Appointed Acting Dean—Dr. Hiram W. Kostmayer, professor and head of the department of gynecology, Tulane University Graduate School of Medicine, New Orleans, has been appointed acting dean of the school, succeeding the late Dr. Henry Daspit, it is reported. Dr. Kostmayer was president of the Orleans Parish Medical Society in 1923.

Society News—At a joint meeting of the New Orleans Gastro-Enterological Society and the Hotel Dieu staff, Dec. 22, 1932, Drs. Donovan C. Browne spoke on "Treatment of Peptic Ulcers with Nonspecific Protein Observations After One Year," Charles W. Duval, "Hepatic Changes in Certain Cases of Jaundice," and Ruth G. Aleman, "Postoperative Treatment of Ruptured Appendix in Children." Dr. Henry W. E. Walther, New Orleans, addressed the students of Louisiana State University in Baton Rouge, January 11, on "Prevention of Syphilis: A Problem for the Youth of the Land." At a meeting of the Orleans Parish Medical Society, New Orleans, January 23, Dr. James L. Nix, Jr., spoke on "European hospitals and clinics," and Dr. Allan C. Eustis, thyroid disease.

MAINE

Bill Introduced—H. 1467 proposes to authorize the board of registration of medicine together with one podiatrist to examine and license persons to practice podiatry. Podiatry is defined as the external treatment of the structure of the human foot by medical, mechanical or surgical means without the use of anaesthetics other than such local anaesthetics as are recognized to have no immediate cumulative, poisonous, harmful or systematic action.

MARYLAND

Personal—Dr. Christian Deetjen presented to the Medical and Chirurgical Faculty of Maryland his collection of x-ray tubes, January 17, at a meeting of the Osler Historical Society. According to the bulletin of the faculty, almost from the beginning of his work Dr. Deetjen had preserved the tubes that he discarded so that this collection shows graphically the development of the science and in years to come will be a valuable exhibit.

Society News—The Society of Hygiene was addressed at the School of Hygiene and Public Health, Johns Hopkins University, January 18, by Dr. Harry S. Mustard on "The Eastern Health District: A Field for Studies in Public Health Problems and Methods," and Marvin M. Harris, Ph.D., and Dr. Linda B. Lange on "Preservation of Acid-Fast Bacteria in Vacuo." A symposium on hermaphroditism was presented before the Medical and Chirurgical Faculty of Maryland, February 17, by Herbert S. Jennings, LL.D., Hugh H. Young and George L. Streeter, Baltimore.

Infant Mortality Rate—With a rate of 68.4 per thousand live births, the infant mortality rate in 1932 was the lowest ever recorded in Maryland, according to the state department of health. New low rates per hundred thousand of population were also noted for typhoid (3), diphtheria (3.1) and tuberculosis (90.2). There were 134 maternal deaths in 1932, as compared with 180 in 1931. No maternal deaths were reported in Calvert, Carroll, Howard, Kent, Prince George's and Queen Anne's counties. There were 42,621 cases of communicable disease, as compared with 66,284 in 1931.

Bills Introduced—H. 230, to amend the chiropody practice act, proposes that the board of medical examiners of the Medical and Chirurgical Faculty of Maryland select the board of chiropody examiners, three of whose members must be members of the Maryland Podiatric Association and one, a member of the board of medical examiners of the Medical and Chirurgical Faculty of Maryland. H. 249, to amend the dental practice act, proposes (1) to authorize the board of dental examiners to grant limited registration to individuals to practice dentistry within the confines of a designated hospital, (2) to authorize the board to revoke the licenses of those licensees who indulge in specified kinds of advertising, (3) to redefine the practice of dentistry so as apparently to limit the right of a corporation to practice and (4) that licensees actually in practice be exempt from jury service.

MASSACHUSETTS

Appointments at Harvard—The *New England Journal of Medicine* notes the following recent faculty appointments, among others, at Harvard University Medical School:

Dr. George Kenneth Mallory, instructor in pathology.
Dr. Robert Alexander Gregory, assistant in neurology.
Danella Straup-Cope, Ph.D., research fellow in physical chemistry.
Clifford Ladd Prosser, Ph.D., research fellow in physiology.
Dr. Wyman Whittemore, associate in surgery, Courses for Graduates.
Dr. Charles Hazard Kimberly, research fellow in psychiatry.
Dr. Dudley Merrill, assistant in medicine.
Dr. Theodore Cary Pratt, assistant in surgery, Courses for Graduates.
Dr. John D. Stewart, assistant in surgery.

Cutter Lectures—Louis I. Dublin, Ph.D., third vice president and statistician, Metropolitan Life Insurance Company, New York, will deliver the Cutter Lectures on Preventive Medicine at Harvard University Medical School, Boston. Dr. Dublin's subject will be "Trends in Longevity, Past, Present and Future," and the dates for the lectures will be March 17 and March 20. These lectures are given annually under the terms of a bequest from John Clarence Cutter, whose will provided that the lectures so given should be styled the Cutter Lectures on Preventive Medicine and that they should be delivered in Boston, free to the medical profession and the press.

Dr. Mallory Retires—Dr. Frank Burr Mallory, chief of the department of pathology at Boston City Hospital, recently retired from service with that institution, having reached the age limit of 70. Dr. Mallory has been connected with the hospital since 1891 and chief of the pathologic department for several years. In 1890 he became associated with Harvard University Medical School, his alma mater, as assistant in histology and has since held several teaching positions, becoming professor of pathology in 1928. Dr. Mallory is the author of books on pathology and contributions to medical journals. He has been editor of the *American Journal of Pathology* since 1925. Resolutions of appreciation for Dr. Mallory's service were adopted by officials of Boston City Hospital. It was stated that he will continue as consultant to the hospital, working without remuneration. Dr. Mallory is the father of

Drs Tracy B and George Kenneth Mallory both pathologists in Boston

Society News—A symposium on psychiatry was presented before a joint meeting of the Boston Medical Library and the Suffolk District Medical Society, January 25, by Drs Ralph A Noble, Sydney, Australia, at present with the National Committee for Mental Hygiene, New York, Donald J MacPherson and Arlie V Bock.—Dr Eric P Stone, Providence, R I, addressed the Harvard Medical Society, January 10, on "Medical Practices of the Aboriginal Americans".—The Middlesex East District Medical Society, at a meeting in Wakefield, January 11, heard Dr Wilson G Smilie, Boston, discuss respiratory infections.—Dr Harvey W Van Allen, Springfield, spoke on "Lung Cavities—Their Control a Necessity to Arrest of the Disease, Treatment by Various Methods" before the Franklin District Medical Society in Greenfield, January 10.—The New England Heart Association held a special meeting, January 11, to discuss the social problem of the child with heart disease.—Dr Albert Warren Stearns, dean, Tufts College Medical School, addressed the William Harvey Society of the school, February 20 on "Conduct as a Medical Problem". Dr Lawrason Brown Saranac Lake, N Y, gave an address, February 10, on "Boston's Contribution to Our Knowledge of Tuberculosis".—Dr Morris Fishbein, Chicago, gave one of a course of lectures sponsored by the extension division of the Massachusetts Department of Education, February 23, on "Changes in the World of Medicine". Dr Richard C Cabot, Boston, will speak, March 23, on "Changes in Ethical Standards".

MICHIGAN

Typhoid at Low Level—Fifty-seven cases of typhoid with eight deaths were reported in Detroit during 1932, a new low level for the disease. The source of infection was definitely traced in thirty-three cases, the probable source was found in eleven, while in thirteen it was unknown. Of the known sources, twenty-five were outside Detroit and eight were found to be within the city. Of those in Detroit, three were traced directly to typhoid carriers. Three cases occurred as a result of swimming in water known to be polluted, and two were the result of direct infection from contact with cases already existing in homes. Thirty-six patients were hospitalized.

Appointments to Kellogg Foundation—Dr Garner M Byington, Charlotte, has been appointed associate medical director of the W K Kellogg Foundation, Battle Creek, a newly created executive position. Dr Byington, who was to assume his duties March 1 will have charge of all medical care for the foundation with headquarters in Battle Creek. His practice, which for the last eight years has been limited to the study of children's diseases, will be taken over by Dr Clinton J Severer, Mulliken. Dr Joseph W Davis took up his duties as director of the newly established health unit in Eaton County, February 1. For the past year he has been director of a mobile unit of the West Virginia Department of Health. Previously he was engaged in public health work in Kentucky.

MINNESOTA

Bills Introduced—H 999, to amend the chiropractic practice act, proposes that licentiates shall not be granted annual renewals of their licenses unless they present evidence that in the preceding year they attended at least one of the two-day educational programs conducted by the Minnesota Chiropractic Association. H 1002, to amend the chiropractic practice act, proposes, in effect, to permit applicants for licenses to practice chiropractic to be licensed without being examined by the state board of examiners in the basic sciences. H 919 proposes to make it unlawful for any publicly owned state hospital to refuse medical treatment to any applicant who has been injured in an industrial accident.

MISSISSIPPI

Hookworm Survey—The examinations in eight counties in the state have been completed in a hookworm survey carried on by the Mississippi State Board of Health in cooperation with the department of preventive medicine, Vanderbilt University School of Medicine, and the International Health Division of the Rockefeller Foundation. The survey was begun Sept 1, 1932. Twenty per cent of the 8,363 specimens examined showed the presence of hookworm ova. Of those found positive, there was an average of 135 worms per person. Thus far, the results of the survey indicate that intensive parasites are a problem of only the white race, the report stated. Negroes showed less than 2 per cent positive for hookworm ova.

NEBRASKA

Society News—Dr Sydnor D Maiden, Council Bluffs, Iowa, among others, addressed the Omaha-Douglas County Medical Society, Omaha, February 14, on "Bronchoscopy and Esophagoscopy from the Standpoint of General Medicine".—Drs Olin J Cameron and Charles C Tomlinson, Omaha, addressed the Nebraska Pediatric Society, Omaha, January 12, on acrodynia.—Omaha physicians recently organized the Omaha Mid-West Clinical Society to sponsor an annual graduate medical assembly. Officers of the society, whose membership is limited to 100, are Drs Byron B Davis, president, Adolph Sachs, vice president, Joseph D McCarthy, secretary and director of clinics, and William P Wherry, comptroller.

NEW JERSEY

Bill Introduced—S 229 proposes to repeal the laws regulating the possession and distribution of narcotics and to enact the uniform narcotic practice act.

NEW MEXICO

Bill Introduced—H 170 proposes to create a board of registration in chiropody and to regulate the practice of chiropody. "A chiropodist is defined as one who examines, diagnoses, prescribes shoes and orthopedic appliances necessary in said practice (of chiropody) who treats medically, mechanically or surgically the ailments of the human foot and limb, and massage in connection therewith, except the amputation of the toes or foot, or the use of anesthetic other than local."

NEW YORK

Changes in Hospital Superintendents—Dr George A Smith, superintendent of Central Islip State Hospital, has retired because of the statutory age limit, and Dr David Corcoran, formerly first assistant physician at the Brooklyn State Hospital, Queens Village, has been appointed to succeed him. Dr Charles S Parker was appointed superintendent of Kings Park State Hospital, January 1, to succeed Dr William J Tiffany, who is now superintendent of Pilgrim State Hospital. Dr Parker had been acting superintendent since November, 1931.

Society News—At the January meeting of the Medical Society of the County of Albany, speakers were Drs James S Lyons, on prostatic hypertrophy, Arthur W Wright, demonstration of pathologic prostate glands, and James N Vander Veer, anomalies of the kidneys and ureters as shown by intravenous urography.—The Columbia County board of supervisors recently voted to establish a county health department to include the town of Hudson. Half the cost of maintenance will be paid by the state.—The New York State Pharmaceutical Association at a meeting in New York, January 9, adopted a resolution opposing the majority report of the Committee on the Costs of Medical Care as detrimental to the best interests of pharmacists and the public.

Bills Introduced—A 1424 proposes to repeal the laws regulating the possession and distribution of narcotic drugs and to enact the uniform narcotic drug act. A 1526 and S 1343, to amend the laws relating to the practice of osteopathy, propose (1) to denominate osteopaths as osteopathic physicians and (2) to eliminate the provisions prohibiting osteopaths from administering drugs or performing surgery with the use of instruments, substituting for the eliminated matter the following: "A license to practice osteopathy shall not entitle the holder thereof to perform any surgical operation involving incision for the opening of a natural body cavity, for the removal of cancer or other tumor, for the amputation of an extremity or an appendage, or for the removal of any gland or organ, or part thereof, of the human body, nor shall such license permit the holder thereof to administer drugs, except narcotics, anesthetics, antiseptics, serums, vaccines and antitoxins."

New York City

Dr Park Appointed to New Professorship—Dr William H Park, director of laboratories, New York City Department of Health, has been appointed the first Hermann M Biggs professor of preventive medicine at New York University and Bellevue Hospital. He has been professor of bacteriology and hygiene at the school since 1897. The new professorship was established by a memorial fund begun soon after the death of Dr Biggs in 1923 and recently completed by a bequest from his widow and gifts from his son and daughter and from the Milbank Memorial Fund. Dr Park was for many years associated with Dr Biggs in the health department during the latter's long service as director of the diagnostic laboratory and later as city health officer.

Society News—The New York Institute of Clinical Oral Pathology was recently organized with a membership of 100 physicians and dentists. It is planned to extend its activities over the country. Advisers of the institute are said to include Drs James Ewing, Harlow Brooks, George H Semken and Abraham Flexner. A symposium on psychiatry was presented at the meeting of the International and Spanish-Speaking Association of Physicians, Dentists and Pharmacists, February 17, by Drs Adolf Meyer, Baltimore, Ricardo Sarmiento Laspiur, Buenos Aires, Foster Kennedy, Bernard Glueck and Clarence P Oberndorf. Dr Joseph Samuel Stovin, among others, addressed the New York Physical Therapy Society, February 1, on "Physical Measures in the Treatment of Atrophic Rhinitis." Dr Mills Sturtevant addressed the Medical Society of the County of Queens, February 17, on peptic ulcer. The section on genito-urinary surgery of the New York Academy of Medicine met, February 15, at New York Hospital, where a clinic was given by the department of urology James Buchanan Brady Foundation, under the direction of Dr Oswald S Lowsley.

OHIO

Dr Doull to Study Leprosy—Dr James Angus Doull, professor of hygiene and public health, Western Reserve University School of Medicine, Cleveland, will sail, March 25, for the Philippine Islands to organize an epidemiologic study of leprosy under the auspices of the Leonard Wood Memorial for the Eradication of Leprosy. Dr Doull will remain in the islands, principally at Cebu, about six months to organize the studies which will be continued for several years. Among other factors to be studied is the frequency of leprosy in relation to diet, age, living conditions and known contact with previous cases.

Dr Haines Honored—Dr Willard D Haines, Cincinnati, was the guest of honor at a testimonial dinner given by medical and other friends February 15, marking his completion of fifty years of practice. Dr George W Crile, Cleveland, was the principal speaker and Dr Robert Carothers was toastmaster. Dr Haines was graduated in 1884 from the old Medical College of Ohio, Cincinnati, now the University of Cincinnati College of Medicine. For many years he has been associate professor of clinical surgery at the medical school and a staff surgeon of the Cincinnati General Hospital. Others who paid tribute to the physician were Drs Martin H Fischer, Edwin Khoun and Edwin W Mitchell, Mayor Russell Wilson, Attorney James A Stewart, representing the Cincinnati bar, and Judge Thomas H Darby.

OKLAHOMA

Bill Introduced—S 275 to amend the law authorizing the sexual sterilization of certain socially inadequate inmates of state institutions proposes to authorize the sterilization also of any inmate of a penal institution who has been convicted of felony three times.

Society News—Dr Frank H McGregor Mangum, addressed the Pottawatomie County Medical Society Shawnee, in January, on diagnosis and surgery of the gallbladder. Drs Henry T Turner Oklahoma City, and McLain Rogers, Clinton, addressed the Western Oklahoma Medical Society, Dec 20, 1932 at Clinton on endocrinology and injuries to the head respectively. Drs James Stevenson and Pleasant P Nesbitt, Tulsa addressed the Muskogee County Medical Society, Muskogee January 9 on eczema and empyema respectively. Dr Louis Rudolph Chicago Robert J Crossen St Louis and James R Reinberger Memphis Tenn delivered lectures on obstetrics and gynecology in Muskogee Dec 7 1932 under the auspices of the extension division of the University of Oklahoma. Dr Julius W Neweg Duncan was named president elect of the Southern Oklahoma Medical Association at the annual meeting at Ardmore in December. Dr Berry H Burnett Duncan was elected secretary. This society is made up of physicians of seventeen counties of southern Oklahoma. Dr Roger Q Archibald addressed the Tulsa County Medical Society February 13 at a meeting at Morningstar Hospital Tulsa on "Bilateral Pneumothorax." Dr Wade Slicker held an orthopedic clinic and Dr James C Peden presented a case of acute pneumothorax in diffuse tuberculosis.

OREGON

Internship Required for a License—Dr Joseph F Wood Portland has been elected secretary of the Board of Medical Examiners of the State of Oregon to succeed the late Dr Clarence I McCusker. The board announces that medical students graduating in 1933 and thereafter will not receive a license to practice medicine in Oregon until they have com-

pleted a year's internship, certified by the board of an accredited hospital.

Society News—Dr Charles H Manlove, Portland, addressed the Oregon Pathological Society, Portland, January 9, on "The Basis of Biopsy." Dr Albert M Webster, Portland, addressed the Polk-Yamhill-Marion Counties Medical Society, Salem, January 10, on "Medical Services and the Public." George E. Burget, Ph D, Portland, addressed the Portland Academy of Medicine January 12, on "Use of the Closed Intestinal Loop for the Study of Some Problems in Physiology."

University News—The annual meeting of alumni of the University of Oregon Medical School was held in Portland, March 6-8, with Dr Frank W Lynch, San Francisco, as guest speaker. Clinics were held each morning and lecture programs in the afternoons and evenings. Arthur R Moore, Ph D, professor of general physiology at the University of Oregon Medical School, will leave shortly to spend fifteen months as visiting professor at Tohoku Imperial University, Sendai, Japan, under the auspices of the Rockefeller Foundation. He will lecture in the graduate school on experimental embryology and physiology of the nervous system.

PENNSYLVANIA

Personal—Governor Pinchot has appointed Dr Samuel McC Hamill, Philadelphia, chairman of an emergency child health committee to supplement the work of relief organizations, with special emphasis on nutrition.

Philadelphia

Seminars on Pneumonia—The third series of graduate seminars sponsored by the Philadelphia County Medical Society is concerned with pneumonia. Dr Arthur C Morgan gave the introductory lecture, February 17, and the following schedule was announced for the series:

February 24 Drs Baldwin Lucke pathology and John A Kolmer, immunity and serum therapy
March 3 Drs Mitchell Bernstein etiology and Samuel A Loewen berg clinical manifestations
March 10 Drs Edward Weiss, cardiac and renal complications and Herbert T Kelly metabolism and diet
March 17 Drs Harry Lowenburg pneumonia in children and Henry D Jump treatment of pneumonia

Society News—Dr Charles W Burr addressed the Philadelphia Neurological Society, February 24, on "Heredity in St. Vitus' Dance." A symposium on backache was presented before the Northern Medical Association of Philadelphia, February 20, with the following speakers: Drs Joseph Bank, John B Lownes, Alfred Gordon, Frederick Hurst Maier and Harry Hudson. The Philadelphia County Medical Society held a "Proctologic Night," February 22 with the following speakers: Drs Descum C McKenney, Buffalo "Clinical Significance of Bleeding from the Colon, Rectum and Anus", Collier F Martin "Some Popular Fallacies Concerning Anorectal Diseases," and Harry Z Hilsman, "Operable Anomalies of the Anus and Rectum." The society sponsored a group of seminars on maternal mortality in eight Philadelphia hospitals, February 16.

TEXAS

Bills Introduced—H 627 proposes to make it unlawful for any pharmacy to distribute at retail or wholesale tobacco, foods, hardware, jewelry and all other articles except drugs or medicines having a therapeutic value. H 605, to amend the dental practice act, proposes, in effect, to prohibit the operation of chain dental offices.

Clinical Conference at Dallas—The Fifth Annual Clinical Conference of the Dallas Southern Clinical Society will be held March 27-31. General assemblies will be held each morning with the following guest speakers:

Dr Cyrus C Sturgis Ann Arbor Mich Diet Digitalis and Diuretics in Treatment of Congestive Heart Failure
Dr Charles C Dennis Kansas City Mo Role of Malaria in Treatment of Syphilis
Dr Joseph F McCarthy New York Present Status of Surgical Therapy of the Senile Prostate
Dr Jewell F Barker Baltimore Advances in Endocrine Diagnosis and Treatment
Dr Philip H Kreuscher Chicago Backache
Dr Arthur E Hertzler Kansas City Differential Diagnosis of Upper Abdominal Conditions
Dr Percival Bailey Chicago Importance of Pathologic Classifications in Diagnosis and Treatment of Brain Tumors
Dr Harry S Crossen St. Louis Prevention of Cancer of the Uterus
Dr Eugene R Lewis Los Angeles Physical and Chemical Aspects of Local Tissue Changes
Dr Joseph Brearemann Chicago The Acute Abdomen in the Child
Dr Louis A Bue Rochester Minn. Problems in Proctology for the General Practitioner

Four evening symposiums will be presented led by Dallas physicians: Dr Henry M Winans on the anemias, John O

McReynolds, on sinus diseases. Charles M. Rosser, abdominal uterine bleeding, and Hugh Leslie Moore, digestion in the infant. Dr. Edward H. Cary, Dallas, President, American Medical Association, will address a public meeting, Monday evening, on the work of the Association and Dr. Barker will give an address entitled "On Growing Old." In addition, there will be clinics each afternoon at Baylor, St. Paul, Parkland, and Dallas Methodist hospitals, round table luncheons at which the guest speakers will make short talks and answer questions, and graduate lectures by Dallas physicians each morning after Monday.

UTAH

Annual Registration Due April 1—All practitioners of medicine and surgery holding licenses in Utah are required to register annually on or before April 1, with the Department of Registration, and to pay a fee of \$3. If a licensee neglects to reregister within from ninety days to six months after April 1, his license can be revoked and will be reinstated thereafter only on his paying the delinquent registration fees and an additional year's fee as a penalty.

WASHINGTON

Bills Introduced—S. 294 proposes to prohibit any hospital exempt from taxation from denying to any physician licensed to practice medicine and surgery in the state the right to practice within the confines of the hospital on an equal basis with all other licensed physicians and surgeons. H. 408 proposes to authorize the boards of commissioners of the various counties to form local health districts to be administered by district health officers. S. 348 proposes to create a state department of maternal and child welfare and to establish clinics in Olympia, Seattle and Spokane. All physicians are to be permitted to prescribe contraceptives for their patients, but they must report to the department the facts of individual cases. S. 328, to amend the workmen's compensation act, proposes, among other things that compensation for industrial hernias be allowed only on proof that there was an injury caused by accident that the hernia appeared suddenly, that it was accompanied by pain, that the hernia immediately followed the accident, that the hernia did not exist prior to the accident, and that the facts were reported to the employer within forty-eight hours next following the occurrence of the hernia. S. 308 proposes to transfer from the director of licenses to the several professional examining committees the right to pass on the qualifications of applicants to determine their fitness for examination, and the duty of conducting proceedings to revoke licenses to practice and of enforcing all laws relating to their respective branches of the healing art. It proposes to authorize such committees to make such rules and regulations as they deem necessary to the discharge of their duties.

WEST VIRGINIA

Bill Introduced—S. 108, to supplement the pharmacy practice act, proposes (1) to require the annual registration of pharmacies, (2) to make it the duty of county prosecuting attorneys to whom the board of pharmacy shall report any violations of the act to cause appropriate proceedings to be commenced and prosecuted, and (3) to require all pharmacies to have on file the latest decennial edition of the United States Pharmacopeia and of the National Formulary.

WISCONSIN

Bills Introduced—A. 403 proposes to repeal the law requiring applicants for marriage licenses to present medical certificates as to freedom from venereal disease. A. 455, to amend the workmen's compensation act, proposes, in effect, to make compensable all occupational diseases arising out of employments covered by the act. A. 459 proposes to require physicians to report to the state board of health the names of patients having cancer, carcinoma, sarcoma or other malignant growths.

Society News—At a meeting of the Sheboygan County Medical Society, Sheboygan, Dec. 15, 1932, Drs. Silvanus A. Morton and Arthur A. Pleyte, Milwaukee, presented papers on radiologic diagnosis of diseases of the chest.—The Waukesha County Medical Society at a meeting, Dec. 7, 1932, endorsed the action of the American Medical Association with respect to its attitude toward the minority report of the Committee on the Costs of Medical Care.—Drs. Ralph Pemberton, Philadelphia, and Robert B. Osgood, Boston, addressed the Milwaukee County Medical Society, Milwaukee, January 19, on arthritis.—Dr. Karl E. Kassowitz has been elected president of the Milwaukee Pediatric Society.

WYOMING

Annual Registration Due April 1—All practitioners of medicine and surgery licensed to practice in Wyoming are required by law to register on or before April 1, with the secretary of the Board of Medical Examiners, and to pay a fee of \$2.50. If a licensee fails to pay the fee within three months after April 1, his license can be annulled, and if annulled it will be restored to him only on his paying the stated fee, plus \$5 as a penalty.

GENERAL

Pan-American Medical Congress—The fourth congress of the Pan-American Medical Association will be held in Dallas, Texas, March 21-25. Dr. Francisco M. Fernandez, Havana, Cuba, is president of the Association, and Dr. John O. McReynolds, Dallas, is president of the congress. A formal inaugural session will be held Tuesday evening, March 21, at which foreign delegates will be presented. Group breakfasts and luncheons have been arranged each day at the Adolphus Hotel for the sections concerned with surgery and at the Baker Hotel for the medical group. Regular sessions will also be held at these hotels. The congress is divided into thirteen sections, each with presidents from the United States and a Spanish-speaking country.

Medical Bills In Congress—S. J. Res. 262 was passed by the Senate and House, authorizing the joint congressional committee investigating veterans' legislation to continue its activities after March 4, 1933, and until 60 days after the first meeting day of the Seventy-Third Congress. H. R. 14395, relating to the prescribing of medicinal liquor, failed to pass. After its passage by the House, this bill was favorably reported by the Senate Committee on the Judiciary and was placed on the Senate calendar. The Senate was prevented from considering the bill by the threat of a filibuster by Senator Brookhart—a "lame duck" senator from Iowa—that would prevent the transaction of any business whatever during the remaining hours of the session.

Field Service in Nursing—Field service will be one of the major activities of the department of studies of the National League of Nursing Education during the coming year, according to a recent announcement. The new service, to be available to any state or institution desiring to have a study made, will undertake studies relating to a particular phase of the nursing service or to the activity as a whole. There will be no fixed charge; each study will be considered separately and, so far as the league is able, it will endeavor to make the costs meet the available resources of the state or the institution requesting the study. The league believes, it was stated, that the most important service it can render to the hospital, to the community and to nursing is field service, since it cannot send out patterns from headquarters to fit all states or institutions because of local differences in tradition, financial resources and ways of thinking.

Bequests and Donations—The following bequests and donations were recently announced:

Home for Destitute Crippled Children, \$20,000, and the Illinois Children's Home and Aid Society, \$10,000, both of Chicago, by the will of Donald M. Ryerson.

Mr. and Mrs. Guy W. Everett recently gave a \$10,000 trust fund to the city of Waseca, Minn., for a hospital.

Mount Vernon Hospital at Mount Vernon, New York, \$20,000, and a residuary fund of \$100,000 by the will of the late Mrs. Frances M. Willson.

Lincoln Hospital, New York, \$10,000, under the will of the late Flora Elshah Isham.

St. Luke's Hospital, \$10,000, and Home for Destitute Crippled Children and the Illinois Society for Prevention of Blindness, \$2,000 each, all of Chicago, to be paid when other bequests are settled, by the will of the late John Crerar.

Augustana Hospital, Chicago, the major portion of the \$40,000 estate of the late Jefferson D. Wright.

Misericordia, Saint Agnes, Jefferson Presbyterian and Hahnemann hospitals, Philadelphia, will receive \$10,000 each from the estate of the late James H. Billington on the death of his wife.

Jewish Hospital, Philadelphia, \$5,000, under the will of the late Ferdinand Rosenberg.

Presbyterian, University and Woman's hospitals, Philadelphia, \$5,000 each under the will of the late Margaret Dornan.

Mount Sinai Hospital, New York, \$20,000 held in trust from the will of Mrs. Esther Wallach Dryfoos.

Children's Orthopedic Hospital, Seattle, Wash., \$5,000 under the will of Mrs. Minnie W. Schalkenbach.

Montefiore Hospital for Chronic Diseases, New York, New York Association for the Blind Hospital for Ruptured and Crippled New York Babies' Hospital of the City of New York, Hebrew Orphan Asylum of New York, Cedars of Lebanon Hospital, Los Angeles, Calif., each \$9,000 by the will of Mrs. Carrie Guggenheim.

Association for Improving the Condition of the Poor, New York, \$10,000, and Stuyvesant Square Hospital, \$7,500, by the will of Abraham Erlanger.

Society News—At the annual meeting of the Federation of State Medical Boards of the United States in Chicago, February 13-14, Dr. Henry M. Fitzhugh, Westminster, Md., was

named president-elect Dr George M Williamson, Grand Forks, N D, became president, Dr James N Baker, Montgomery, Ala, vice president, and Dr Walter L Bierring, Des Moines, Iowa, was reelected secretary Dr William D Cutter, secretary, Council on Medical Education and Hospitals, American Medical Association, Chicago, was appointed managing editor of the *Federation Bulletin* to succeed Dr Nathan P Colwell, who asked to be relieved of that position—The next meeting of the Harvey Cushing Society will be held at the clinic of Dr Roy Glenwood Spurling, Louisville, Ky, April 13-14 Dr William P Van Wagenen, Rochester, N Y, is the president of the society, organized last year Active members engage in investigation in neurology, neurosurgery and allied subjects Dr Tracy J Putnam, Boston, is secretary—Dr John C Meakins, professor of medicine, McGill University Faculty of Medicine, Montreal, was chosen president-elect of the American College of Physicians at the annual session in Montreal, February 6-10 Dr George M Piersol, Philadelphia, was installed as president The 1934 session will be held in Chicago—The American Public Health Association will hold its sixty-second annual meeting in Indianapolis, October 9-12

CANADA

Personal—The George Armstrong Peters Prize of the University of Toronto has been awarded to Dr William S Keith, of the staff of the Hospital for Sick Children, in recognition of his work in the surgical treatment of broken bones and bone grafts

Hospital News—The Mara Memorial Laboratory for research on tuberculosis was recently opened at Queen Alexandra Sanatorium, London, Ont, with ceremonies at which Dr John G Fitzgerald, dean University of Toronto Faculty of Medicine, made the principal address The laboratory is the gift of Mr Wilfred Mara, London, in memory of his family

Society News—Dr Edmund B Piper, Philadelphia, addressed the Toronto Academy of Medicine, Dec. 6, 1932, on "Management of Complications of Late Pregnancy and Labor"—Dr Egerton L Pope, professor of medicine, University of Alberta Faculty of Medicine, Edmonton, delivered the annual Gordon Bell Memorial Lecture under the auspices of the Winnipeg Medical Society at the University of Manitoba, Dec 5, 1932 His subject was "Emotion and Reason"

Cancer Institute—The provincial government of Ontario in cooperation with Queen's University Kingston has arranged to establish a cancer institute or clinic at the Kingston General Hospital according to a report of the American consul at Kingston to the U S Department of State The hospital will provide space for treatment of twenty resident cases Modern x ray equipment is being purchased and the government is to furnish radium sufficient to meet the needs of the institute A supervisory committee representing the province the university and the hospital is to be appointed and a diagnostic committee composed of members of the hospital staff is in process of formation The new institute which is expected to be in operation by April is one of three to be established in Ontario in accordance with recommendations of a special cancer commission published in March, 1932

LATIN AMERICA

Antiplague Campaign in Peru—Surgeon Clifford R Eskey of the U S Public Health Service in a recent issue of *Public Health Reports* describes an epidemiologic survey of plague in Peru carried out under the direction of Medical Director John D Long also of the service Active antiplague measures were instituted in Lima and Callao in November, 1930 and in other provinces during the following December and January Assistants were stationed in all the principal ports to supervise trapping and poisoning of rats and to inoculate guinea-pigs with material from the rats caught each day to determine the presence of infection In Lima more than 25,000 rats were caught More than 70 tons of poison was distributed to 100 towns and the adjacent haciendas From January to June 1931 only ninety-seven cases in human beings were reported the smallest number ever recorded in a similar period In the city of Lima no cases were reported from March 15 to June 15 It was believed that the antiplague measures had been responsible for the reduction though the investigators emphasized the statement that the time elapsed was too short to judge the permanence of the results They had special emphasis on rat proof construction of buildings as it was shown definitely that the incidence of plague was related in the communities in which rat harborage was present

Foreign Letters

LONDON

(From Our Regular Correspondent)

Feb 11, 1933

A National Medical Service

When the socialist government was in office, a demand arose among its followers for a complete state medical service for every one The danger of something of the kind led the British Medical Association to formulate a scheme with a view to preserving some of the individualism of the profession With the defeat of the socialist government the danger of such a sudden transformation passed, but not the danger of further socialization or medical service The national health insurance scheme does not provide medical attendance for the wives and children of the insured or any consultant, specialist or hospital service, and it is only the financial difficulty that has prevented extension in these directions The further socialization of the medical profession remains a political question which exercises the British Medical Association more than any other problem

An address, delivered before the Brighton division of the association by Sir Henry Brackenbury, chairman of the council, on "The Essentials of a National Medical Service" summarizes the policy of the association He laid down four essential features for a national medical service 1 It must offer scope and opportunity for the threefold aim of modern medicine—curative, preventive and constructive 2 It should afford opportunities for clinical and laboratory research 3 It should provide a physician for every individual, as in private practice Sir Henry protested against any assumption that the general practitioner represented an inferior branch of the profession The relation between physician and patient was based on two things—it was a relation between physician and patient primarily, if not solely, with no one else intervening, and it was a free relation The physician was not confined to some limited system within which he must treat his patient, and there was a free choice both of patient by physician and especially of physician by patient 4 The service must be a complete one, providing not only the general practitioner but also the consultant and specialist, the various ancillary services and the necessary institutional accommodation Should the service be provided for everybody, regardless of social status? The medical profession was in favor of providing a national service only for those who could not provide it for themselves This view was not determined by monetary considerations but by its jealousy for preserving the fundamental relations of physician and patient as set out before, which were completely preserved in private practice With regard to administration, he advocated unification of the health services of the country, so as to bring the insurance service into close relation with public health and poor law administration

Institutional provision could not be provided in exactly the same way by a compulsory insurance system, but it was necessary for a complete service With the tendency of hospitals to shift from the purely charitable basis to one more or less contributory the medical staff should be recognized financially in some form or other Another essential was the admission of the general practitioner with responsibility for his own patients, under hospital conditions Physicians should be brought into close relation with the public health service and in fact be considered an integral part of it Finally there was the relation of the physician with other persons of the health service—midwives school nurses and health visitors These should not be regarded merely as subordinates of the health officer but as helpers to all physicians of the area

Sterilization of the Unfit

Sir Henry Brackenbury addressed another meeting of the division on "Sterilization of the Unfit in Its Relation to Private Medical Practice and to Certification." He referred to the government committee now considering the subject of hereditary transmission of mental defect. Sooner or later the profession would be faced with the duty of saying that a case was one of mental deficiency in order that some communal action might be taken or that, with due precautions, there should be an operation for sterilization. An expert mental deficiency committee of the British Medical Association expressed the view that sterilization even widely applied to mental defectives, would cause no appreciable difference in the number of such defectives, at least for many generations. Although it might be easy to certify that an individual was a mental defective, the more formidable difficulty remained of saying whether the mental deficiency was hereditary and would be handed on by the individual. If that could not be said sterilization was futile. Any trait whether physical or mental was not, strictly speaking, hereditary or environmental, it was the end-result of both hereditary and environmental causes acting on one another, and it must be extremely difficult to disentangle what was hereditary from what was not and to say that for the sake of the race a person ought to be sterilized. He would have no hesitation in advising the sterilization of mental defectives on racial grounds if it was known that the production of others would be prevented, but cases of this type were admittedly few. The real difficulty was with the carrier of the recessive type of defect, who might be a normal person and capable of producing normal offspring. Here sterilization would have little effect. It had been mathematically calculated that if every albino was sterilized in every generation, the incidence of albinism would be reduced by only one half in 7000 years. Almost certainly mental deficiency was caused by the fortuitous combination of a number of defective genes in a number of different chromosomes that it was of a multiple recessive character. Therefore from a racial point of view little would be produced by sterilizing every mental defective.

Protection for the Certifying Physician

Sir Henry Brackenbury and the medical secretary of the association appeared before the government committee on the transmission of mental defect. Basing their views on the cognate matter of lunacy certification, they had told the committee that, if the sterilization of mental defectives was to be imposed, a single certificate would not be satisfactory, that, if there were two certificates, one should be given by the family physician and the other by an expert, that, if there were reasons why the family physician should not or would not certify, these should be stated on the certificate in justification of having gone to somebody else to get the certificate, and that there should be complete indemnity against actions at law being brought against the certifying physician, except on the ground of gross negligence.

Deaths from Electric Shock in a Bath

The danger of a person in a bath touching a defective electrical switch, in consequence of the water and bath furnishing a perfect "earth" for the current, is well known. But this danger has been manifested in a novel and striking manner in consequence of the use in a bath of an electrical heater and hair drier, respectively. Two inquests are reported in one day on young women who lost their lives in this manner. A girl, aged 17 years, on going to her bath took an electrical heater with her to warm the bathroom. After a few minutes her mother heard screams and forced the door open. She found the girl unconscious in the bath with the heater on top of her. She was taken to a hospital, where she died. In the second case a woman, aged 23, took a book and an electrical

hair drier to her bathroom. Her father found her with the drier in her right hand and the book at the end of the bath. When he touched her he got a shock himself, the handle of the drier being saturated and the current still on. The drier, which the girl had had for two years, was poorly insulated. A third inquest is reported on the same day in which a man, aged 39, was taking a bath when his mother smelled smoke and found him on top of an overturned electrical radiator. His clothes had caught fire and he was badly burned and died almost immediately. He was recovering from an attack of influenza, and it is believed that he fainted and fell over the radiator.

Shortage of Medical Officers in Army and Navy

A shortage of medical officers in the army and navy has again occurred because the conditions of service do not compare favorably enough with those of civil practice. At a meeting of the council of the British Medical Association, Surgeon Rear Admiral Thomas stated that the total establishment of the naval medical service was 402, while the strength was only 325, there being a shortage of 77. Many surgeon commanders had now to do the routine work formerly done by junior officers, because of shortage of the latter. The pay of single officers compared unfavorably with income obtainable on shore, and prospects of promotion were uncertain. It was also stated that the difficulty created by the early retiring age of 50 and the inadequacy of the pension was acute. Speaking for the army, Major General Hannay said that the pension on retirement was inadequate and that an officer was usually unable to save while in the service. Grievance was also felt as to specialist pay. Many officers by hard work qualified as specialists and were not employed as such. The Council passed a resolution drawing the attention of the military and naval authorities to the proposals for the improvement of the terms and conditions of service, submitted by the association to the government in 1931.

PARIS

(From Our Regular Correspondent)

Jan 25, 1933

The Infectious Origin of Cataract

Dr Lavagna, who for years has been doing research on the infectious origin of cataract, gave recently some results of his investigations. Since Romer and Dor's reports were published it has been accepted that disorders in the crystalline lens, leading to the formation of cataract, are the result of hydrolysis and the retention of cellular poisons originating elsewhere in the organism. Lavagna believes in an infectious origin. The increase of lipoids observed in the tissues of a cataract is, in his opinion, a defense reaction of the organism against a chronic infection, for similar reactions are observed in septic gangrenes caused by certain anaerobic bacteria. Cataract is transmissible to the guinea-pig by intra-ocular inoculations of an emulsion of cataract tissue. An emulsion of human cataract introduced subcutaneously, or even by mouth, causes cataract to develop in animals in 60 per cent of the trials, which proves that there is a special virus manifesting a veritable tropism for the lens. A bacteriologic examination of smears of the tissue of fifty cataracts showed bacteria in only 20 per cent of the cases, but the cultivation of this tissue in aerobic and anaerobic mediums gave positive results in 90 per cent. The micro-organism most commonly encountered is a facultative anaerobic diplococcus, which grows readily in deep implantations in gelose. Its morphology may vary, one finds two strains, one form being streptococcic and twice as abundant as the other, which is bacillary. The inoculation of these cultures into animals causes cataract eighty times out of a hundred when it is applied to the eyeball or to the conjunctiva. In experiments made with other bacteria, the only ones that

produced somewhat similar lesions were certain diplostreptococci isolated from rheumatic lesions, a strain of hemolytic streptococcus obtained from the Institut Pasteur, and a strain of *Clostridium welchii*. Lavagna prepared an immunizing serum from cultures made with various strains derived from human cataracts and killed by means of heat. If an injection of this vaccine is applied to the animal a month before the virulent culture is injected, cataract does not develop. If the vaccine is applied less than one month before the inoculation, it protects in only half the cases. Lesions are produced in the other half, but they remain translucent and never invade the whole lens. Attempts to treat cataract in man by means of this vaccine gave encouraging results. The functional disorders are attenuated, and the opacity of the crystalline lens remains in the primary stage.

Action of the Posterior Lobe of the Hypophysis in Headache

Carnot, Caroli and Cachera gave a series of injections of the posterior lobe of the hypophysis to patients with biliary disorders with a view to determine the functioning of the bladder, it happened that these injections were given to patients suffering also from bad attacks of migraine, and there was observed in a number of cases a rapid and lasting disappearance of the headache and the nausea. Following these observations, they gave this treatment to patients with various types of headache. The patients were affected with migrainoid pains associated with dyspeptic disorders other than gallbladder disease. Some were suffering from headache that had no relation with digestive disturbances, headache associated with seasonal "colds," or with migraine of menstruation. More than twenty patients were treated. Nearly all experienced relief within a few minutes. At first it was given subcutaneously, but the effect was the same when the powder of the hypophysis was introduced within the nose. In studying this sedative action, the authors abandoned the theory that it was associated with emptying of the bladder and the drainage of bile. They considered the effect of the hypophysis on the cerebral blood supply or on the pressure of the cerebrospinal fluid. The action of the hypophysis on the cerebral circulation resembled that of ergotamine tartrate, the therapeutic value of which in migraine is well known. Changes in the pressure of the cerebrospinal fluid are usually in the direction of hypertension.

The Crusade Against Rats

Rats are carriers of the plague, exanthematic typhus, sodoku, and possibly hemorrhagic spirochetosis. These animals likewise damage property, the total amount of which for France and French North Africa exceeds a billion francs (\$40,000,000) a year. Two international congresses have already been held in Paris to study the best means of destroying these rats and in a previous letter reference was made to their rather fallacious conclusions. Dr. Loir, who is head of the public health service in Havre and also a nephew of Pasteur, has found a simple solution of the problem. It consists simply in training a certain breed of cats especially adapted to catch rats. He established at Havre a cat farm where he breeds a large species of cat which has been constantly under special training as rat catchers. The results have been excellent. Not a single rat can now be found in the city of Havre. These cats are intelligent and it does not take them long to locate rats. Impressed by these results, Mr. Herriot, mayor of Lyons, requested Dr. Loir to apply his method to the abattoirs in that city. A sufficient number of cats were placed in the abattoirs of Lyons and these buildings were rid of rats within a few weeks. The same excellent results were obtained with this method in a large warehouse in Paris. An appropriation has been made by the municipal council of Paris to establish a farm on which the cat animals may be raised.

BERLIN

(From Our Regular Correspondent)

Jan 30, 1933

Harmonious Thinking in Biology

Prof. August Bier addressed recently the Berliner Medizinische Gesellschaft on the subject of "Harmonious Thinking in Biology." Bier, to whom all members of the medical profession listen eagerly on all occasions, expressed himself somewhat as follows. Harmonious thinking presupposes consideration from widely different points of view, and, particularly, from opposite sides of a question. The world thus far has done but little harmonious thinking. In fact, science, during the past hundred years, has got quite out of the habit of thinking harmoniously. Our great theories, and, particularly, our biologic theories, are suffering from a onesidedness. The fate that all great theories, more or less, must suffer of being first dogma, then rejected and finally again recognized to a limited extent, Bier illustrated by citing the history of darwinism. The fundamental weakness of all great theories is the belief of their proponents that the theory constitutes the truth, whereas it represents only one truth. The theory views only one side of the subject. To approach as closely as possible to reality, one must consider a subject from various sides, and, particularly, from opposite sides. This Bier calls harmonious thinking. The honor and authority of science require that harmonious thinking be generally practiced. If not, science comes to be held in slight esteem by the masses, who say "What kind of science is this that today rejects what yesterday it recognized?" Harmonious thinking does not, by any means, exclude the onesided theory, on the contrary, the abstraction is needed for successful scientific work, scientists must, however, clearly understand that every scientific theory deals with great abstractions, and that with such abstractions one can approach the subject to be studied just as well from the opposite side. Both sides are, as a rule, equally true, if one remains conscious of this restriction, and equally false, if one loses sight of this fact.

Premature Child Develops Normally

In the medical literature there are numerous reports of the normal development of persons who were born prematurely. But reports on very small children born prematurely, extending over a number of years or decades, are rare. Professor Rietschel of Würzburg has published an instructive case in *Streiters Zeitschrift für Krankenpflege und Gesundheitsfürsorge*. When Rietschel was director of the Home for Infants in Dresden, a girl baby 35 cm long and weighing 940 Gm was admitted ten days after birth. It was decided that the child must have been born from two and one-half to three months before term. During the first few days after admission, the child's weight dropped to 900 Gm, whereupon it was placed in an incubator. It was fed with great care and after a little over eight months was returned to the parents weighing 2500 Gm. It has remained their only child, its present height being 155 cm and its weight 45 Kg, and it is otherwise normal. The young woman now 23 years old, is a music teacher.

League Against the Formation of Political Groups in the Medical Profession

There are in Germany a number of medical societies whose history extends over a period of 100 years or more. They were created for the most part for the exchange of scientific experiences for deliberation on matters of public health, or for social intercourse with one's colleagues. Later questions of professional politics began to come up, the discussion of which was relegated to a great extent to the *Deutscher Ärzteverein*, which today still is the syndical organization of German physicians. Closely associated with this league and under the

same chairman, is the economic syndical organization, which is called, after its founder, the Hartmann league.

While occasionally, in some local societies, political trends have gained the upper hand, the leagues mentioned have always opposed the growth of any such tendencies and have seen that the solidarity of the German medical league, in all matters pertaining to professional problems, has been preserved.

A group of physicians with socialist tendencies has, however, created a special organization, with a membership that supports certain political views and social movements. Physicians belonging to the national socialists followed their example and formed a second special organization. Of late there has been a movement, especially in western Germany, to organize a special professional group among the Catholic physicians, on the basis of their political and social views. The directorate of the *Deutscher Aerzteverband* is watching this movement with great anxiety, as was revealed by the discussion on the subject at its last session. A split in the medical profession is feared. Many speakers emphasized that the physician should be primarily a help to patients. At no time has there been such a need of influencing the souls of patients as at present, which presupposes a body of physicians that is able to understand human problems and is disposed to take a sympathetic interest in everything that concerns the affairs of their patient. The question is asked, How can the humane mission of the physician be realized if the social, political and religious relations of the physicians are overemphasized and brought under questionable influences? By openly calling attention to the effects of this trend of the times, from the standpoint of unity and the preservation of the "ideal physician," it is hoped that the large number of physicians who have joined the movement, unconscious of the danger, may be brought to their senses.

The Growth of German Hospitals

In a recent address before the *Berliner Gesellschaft für öffentliche Gesundheitspflege*, Dr. Goldmann, of the federal ministry of the interior, described the development and the work of German hospitals. In the past fifty years, German hospitals have more than doubled in number, and the number of sick-beds has increased more than fivefold. Less than two years ago there were about 4,000 hospitals with about 400,000 beds. The number of persons treated annually in hospitals has increased, within fifty years, from half a million to nearly 4,000,000, nearly an eightfold increase. The mortality of many diseases in the hospitals has been reduced, for example, the mortality from appendicitis has dropped from 45 per cent to 16 per cent. At present, Germany ranks among the first countries in the proportion of available hospital beds to the number of inhabitants (62:1,000).

Postoperative Lung Complications

Addressing the *Berliner Gesellschaft für Chirurgie*, Professor Sauerbruch discussed the important subject of postoperative lung complications. He called attention first to the various types of pneumonia: (1) aspiration pneumonia, (2) anesthesia pneumonia, which is becoming more rare, (3) infarct pneumonia, characterized by inflammation about an embolus, (4) massive collapse of the lung, which is often wrongly regarded as pneumonia, and is due to occlusion of a bronchus, and (5) influenzal pneumonia. There are other conditions that are directly connected with the operation: 1. Reaction due to taking cold (Sauerbruch noted that the cases of postoperative pneumonia decreased when patients were no longer transported, as formerly, through the open air to an adjacent pavilion). 2. The shock reaction of the lung, which is reflected in a severe pulmonary hyperemia. 3. Allergic reactions, first toward substances used for general or local anesthesia, and secondly toward protein disintegration products. 4. Toxic reaction, every extensive operation produces toxins that enter the blood, particularly frequent, owing to this cause, is pneumonia following operations

on the pancreas. 5. Cardiac disturbances, which may be significant in causing postoperative pneumonia. Inadequate respiration is also an important factor, especially after operations on the upper part of the abdomen, owing chiefly to the fact that the tonus of the diaphragm becomes impaired. Epinephrine, venesection and quinine preparations often help more than digitalis and similar medicaments. Opiates are sometimes indicated. One must not forget that morphine has a central effect on respiration.

Report of the Red Cross

The *Preussischer Landesverband vom Roten Kreuz* and its provincial chapters have published a report on their activities during the past fiscal year. Formerly complaints were heard at the general assemblies that the Red Cross did not have sufficient work to perform, now, owing to the economic situation, all the regular forces and the auxiliaries of the Red Cross are being used to their fullest capacity. Few of the communes are able to supply the needs of all their dependents, so that everywhere the voluntary welfare movement has to be strengthened. In unemployment aid, welfare aid for the sick, and the small garden movement, the Red Cross has collaborated energetically. A new task for the Red Cross is the training of the civil population to protect itself against air attacks. The International Red Cross has protested, many times, against the use of chemicals in air attacks, but so long as air attacks with chemicals are not generally prohibited, the Red Cross regards it as a duty to aid, with all its power, the authorities in their endeavors to protect the civilian population against loss of life that may result from such air attacks.

ITALY

(From Our Regular Correspondent)

Dec 31, 1932

Congress of Urology

The eleventh *Congresso nazionale della società italiana di urologia* was held in Rome, in the Great Hall of the *Clinica chirurgica* of the university. Professor Bruni, the president, in opening the session recalled the figure of Antonio Scarpa, the eminent urologist and general surgeon, the centenary of whose death was celebrated this year by special ceremonies. In the matter of extraction of bladder stones during Scarpa's time, the perineal route and the rectovesical method struggled for supremacy. Scarpa perfected the perineal method and published an article in which the preperitoneal space, called now Retzius' space, was minutely described for the first time.

RENAL SURGERY

The first topic on the program was "The Remote Orthopedic and Functional Results of Conservative Renal and Ureteral Surgery." The official speakers were Prof. G. Nicolich of Trieste and Prof. V. Raffo of Genoa. Professor Nicolich endeavored to show what improvements in function are obtained by conservative operations and what functional lesions may possibly be due to such operations. He examined persons who had been operated on for decapsulation of the kidney, nephropexy, nephrotomy, nephrolithotomy, nephrostomy, pyelolithotomy and ureterolithotomy, doing urinalysis and simple radiography, but he did a minimum of instrumental examinations (cystoscopy, catheterization of the ureters, pyeloscopy, pyelography). The patients were operated on at the *Ospedale di Trieste*, in which, during the period 1897-1932, 332 conservative operations on the kidney and 36 conservative operations on the ureters were performed. Of the former, 299, and of the latter 33, patients survived. In 77 of the renal cases (26 per cent) and in 13 of the ureteral cases (39 per cent) reexaminations were made later. On the basis of the examinations, the speaker brought out that little or no damage results to renal function or to the excretory apparatus from decapsulation, capsular nephropexy and pre-

lithotomy, whereas damage may result from nephrotomy, the conservative operations proposed for hydronephrosis, renal enervation and the resections, anastomoses and plastic operations affecting the ureters. Nicolich surveyed then the remote results of the conservative operations in renal malformations and in traumatic lesions of the kidney, such cases were rarely treated in the urologic department at Trieste. With regard to operations for floating kidney, the speaker considers that nephropexy is indicated only in cases of high degree of mobility not associated with enteroptosis or which present inflammatory processes due to the abnormal mobility. There were nine patients operated on by nephropexy, in five of whom a descending pyelo-ureterography was done. The results varied notably. The best results were in persons whose abdominal walls were not relaxed. In nephrosis and in chronic glomerulonephritis, the speaker did not observe favorable results from decapsulation, but more frequently he noted a rapid exacerbation of the disease. A study of the remote results of conservative operation for nephrolithiasis presents many difficulties, since, if the renal functioning and the pyelo-ureteral functioning are changed, it is difficult to determine whether the changes are due to the operation or to the recurrence of calculosis, infections, toxic products of exchange or modifications in the circulation. In the urologic department of Trieste there were performed, up to February, 1932, 226 conservative operations for nephrolithiasis, and 162 nephrectomies.

The number of nephrectomies is high, but in all cases it was a question of kidneys with grave infectious or hydronephrotic parenchymal lesions or of large and multiple calculi. On the whole, the remote results of these conservative operations were good as regards the functioning of the kidney and with respect to its position. In the majority of cases a dilatation of the calices, sometimes associated with a dilatation of the pelvis, was observed. In the cases of bilateral lithiasis, the remote results were favorable as regards the general condition of the patients and the subjective disturbances but less favorable with respect to recurrences and the anatomic and functional changes of the kidney and of its excretory apparatus. With regard to conservative operation in hydronephrosis, the speaker regards resections of the ureter as contraindicated. He believes that good results can be obtained by means of nephropexy and freeing the ureter from adhesions (ureterolysis). Ureterolithotomy is considered a benign operation that never has a damaging effect on the tonicity and motility of the ureters.

Professor Raffo, who spoke on the same subject, examined eighty-five patients previously subjected to conservative surgical intervention on the kidney and ureters. He concluded that the kidney is not infrequently displaced after conservative operations that have not been supplemented by nephropexy, but rarely does this displacement produce notable disturbances in the functioning of the kidney and of its excretory tracts. He found that the recurrences of calculi are rather frequent after conservative operations especially after nephrolithotomy. In cases of ureteral lithiasis treated with ureteral lithotomy, he found 18.48 per cent of recurrences. As regards conservative surgical treatment of floating kidney, the speaker concluded that nephropexy usually gives favorable results especially if done to overcome obstruction due to the renal mobility.

As regards hydronephrosis, Raffo stated that in selected cases the conservative operation may give satisfactory remote results. Intection is not an absolute contraindication to a conservative operation. In so-called small hydronephrosis without apparent caliceal dilatation, nephropexy gives important results. Sometimes the mere division of an aberrant vessel brings a clinical recovery. Plastic operations are not to be rejected absolutely.

Several theoretical communications were presented. Niscio of Bari reminded that in discussing renal calculi the speakers omitted themselves to statistic. He would have preferred

to have the patients studied from the point of view of the constitution, the diathesis, the nervous system, the sympathetic system and, above all, the parasympathetic system.

At the congress next year at Pavia, the topic will be "Endoscopic Treatment of Disorders That Cause Obstruction of the Neck of the Bladder." The newly elected president of the Società italiana di urologia is Professor Gardini.

Meeting of National Council of Research

Honored by the presence of the "head of the government," the Consiglio nazionale delle ricerche held recently a session in Rome. Senator Marconi reviewed the activity of the council during the year.

With regard to medicine, the researches dealt mainly with hygiene, the epidemiology of typhoid, and *Ancylostoma duodenale*, the action of ultraviolet rays, the tuberculous ultravirus, rheumatism and the ultramicroscopic elements of the virus of malaria.

BUCHAREST

(From Our Regular Correspondent)

Jan 20, 1933

The Ninth International Congress of Medical History

The Ninth International Congress of Medical History was opened in Bucharest, Sept 10, 1932, in the halls of the Ateneul Roman. Charles II, king of Rumania, the honorary president of the congress, was present. The opening address was given by Dr. Gomoiu, formerly secretary of the ministry of public works, now amalgamated with the ministry of public health. The Rumanian premier, Alexandru Vajda, also a physician, discussed the importance of this relatively young science and expressed thanks to the 137 representatives of twenty-three states and forty-eight universities, who came from all parts of the globe. The scientific program was taken up Monday in the hall of the legal faculty of the university, under the presidency of Professor Castiglioni. Prof. Ata Galip of Istanbul read a paper on "The Evolution of the Medical Sciences in Turkey." Prof. Hector Sarafidi read a paper written by Aiheni Kisis on 'History of the Progress of Medical Science in Greece', Ali Mihali of Vlorë took up "The Evolution of Medical Science in Albania", Stoianoff of Sofia, Bulgaria, and Jujo Thaller of Zagreb, Croatia, lectured on the early history of medicine in their respective countries.

Professor Suhayl of Istanbul discussed the evolution of the Turkish hospitals. It was interesting to learn that fairly well equipped hospitals were functioning in Turkey 2000 years ago. Drs. Meyersohn and Halevy, both of Bucharest, read a paper on Jewish physicians practicing in Rumania in the fourteenth to eighteenth centuries. Panaitescu of Sulina, Rumania, who read a paper on the history of public health service in the Danubian ports, emphasized that the extermination of malaria in these ports was a result of the research of the late Ronald Ross of England. Samarianu of Calarasi, Rumania, read a paper on the evolution of the Rumanian hospitals and other public institutes which he said were copied from the French system. The public health laws of Rumania also were offsprings from the French. Sarafidi of Constanza, Rumania, lectured on the evolution of the well known malaria nest in the Dobruja, the most backward of all Rumanian provinces. The number of physicians there is small owing to the great poverty of the inhabitants and private practice is negligible. The salary paid by the state does not compensate for the risk a physician takes because of the prevalence of infectious diseases. On the third day of the congress, Capparoni of Rome and Giordano of Venice related the history of plague in Italy. They said that the first records dealing with plague in Italy were made by a physician called Rurus who came from Ephesus, in the reign of the emperor Trajan. Plague was brought into

Italy sporadically from Libya, Egypt and Syria. The home of plague at that time was northern Africa. The first epidemic in Italy occurred in the sixth century. In the great epidemic of the fourteenth century, called the black death, Italy was included. On the fourth day, Professor Bilkiewicz of Cracow, Poland, read a treatise on the future of the history of medicine. He believes that the study of medical history ought to be required in all universities. Professor Fischer of Vienna discussed the development of gynecologic surgery, and Professor Goldschmidt of Frankfurt the importance of the pathologic and anatomic work and the achievements of Cruveilhier.

On the fifth day, Dr. Gomoiu read a paper on the recent history of housing and sanitation in Rumania. He said that with the exception of Bucharest there had been no housing problem in Rumania prior to 1880, it came with the rise of industrialism. Legislation enacted in the period of 1880-1898 encouraged the erection of inexpensive dwellings for the working classes by granting tax exemptions to cooperative building and loan associations. In 1898 an impetus was given to the housing movement by the establishment of a central housing commission and by the foundation of the Institute for the Building of Popular Houses. The erection of houses in large railway centers for railway employees was encouraged and financed by the government. To meet the housing crisis following the war, a fifteen year exemption from taxes was granted for new buildings and generous credit was supplied by state subsidized banks, more especially to cooperative building associations—often cooperative only in name. Since 1922 a new trend has been given to the effort. Tax exemption has been extended to small apartments in order to encourage private enterprise to meet the demand for houses, special credit facilities are afforded to house building societies. At the end of 1927 the housing crisis had not been solved, but it was much less intense.

As to sanitation, the prevention and treatment of venereal disease has been stressed. A nation-wide antituberculosis campaign has been started, working through provincial associations regulated by different acts issued between 1902 and 1910. Through them, all the efforts in this direction are coordinated, and special dispensaries, sea and mountain sanatoriums, hospital accommodations and open air schools for children are provided. The funds heretofore assigned are proving inadequate and means to increase them are being studied in connection with the compulsory insurance of industrial workers against tuberculosis enacted quite recently. A law enacted in 1928 provides for the opening of municipal and provincial hygienic laboratories for research work in hygiene.

Dr. Gabel of Poland read a paper on eye diseases known among the ancient Egyptians and Arabs. Professor Suhayl exhibited a medical manuscript of the fifteenth century. Szumowsky of Cracow, Poland, reported an elaborate study in which he endeavored to prove the importance of medical history as a required subject in the medical curriculum. Professors Lavastine and Vinchon discussed the state of medical science in Persia in the seventeenth century. Vaian of Bucharest read a paper in which he tried to prove that the first Rumanian medical historian was Prince Cantemir. Demeter Halevy of Bucharest discussed medical references to the function of the Jewish rabbis in the eighteenth century.

After the congress the members visited the seaside and climatic health resorts, where they were entertained with magnificent banquets. They were greatly pleased with the hospitality of the hosts.

The Rumanian postmaster general issued special stamps to commemorate the occasion. The one leu stamp illustrates the centenary of the foundation of the civilian hospitals, 1832-1932. On the ten lei stamp is a reproduction of Trajan's bridge, the symbol of the road on which the ancients came into Rumania. It shows Aesculapius and Hygeia coming into Rumania on a

boat on the Danube, in the background is an Istrian lighthouse, in reference to the culture of the old Dacia, on the left side of the stamp is the profile of the king. The special stamps illustrate the theme of the congress, which was the development of the medical sciences in Rumania and in the Balkan countries.

Every one present was given also a bronze souvenir coin on one side of which was shown Aesculapius and Hygeia, just as they were pictured on a stone found at Constanza, while drilling a well. The other side of the coin illustrates the conception of medicine, as it appeared on a medal which was coined during the reign of the emperor Severus.

BELGIUM

(From Our Regular Correspondent)

Jan 17, 1933

The Brussels Medical Week

The recent Brussels medical week (*journées médicales*) was a complete success. In his opening address, the minister of health discussed the sanitary condition of the country. In 1830 Belgium, with a population of 4,000,000, had about 100,000 deaths, in 1930 Belgium, with a population of 8,000,000, had about the same number of deaths (100,000). In 1920, 1,459 cases of typhoid were reported, in 1931, 150 cases. In 1920, 6,409 cases of diphtheria were recorded, in 1931, 1,669 cases. In 1929, 500 cases of poliomyelitis were notified, in 1931, 59 cases. There were no cases of plague or cholera. In 1910 there were 163 deaths per 10,000 inhabitants from tuberculosis, in 1930 there were only 118 deaths from tuberculosis per 10,000 of population.

Public health work in Belgium is accomplished by the collaboration of medical practitioners and the government health services. The government decided not to delegate the protection of the public health to a special body of medical sanitarians. Such an organization would no doubt be impractical in Belgium, where private medical practice has been deeply entrenched since ancient times. It was decided, therefore, to divide the duties involved in the protection of the public health between the physicians who protect the individual and the family, and the health officers who protect the people as a whole. It has been found that the best way to protect the general interests, in the matter of health, without damaging private interests, lies in preserving a proper balance between the respective duties of each party, and in the perfect coordination of their activities. The practitioner thus becomes the indispensable guide of the health officer.

THE PHYSICIAN AND THE COURTS

In discussing "The Civil Responsibilities of the Physician," Dr. d'Ernst took as his basis the research of Professor Juliard of Geneva. He said that, in view of the present state of mind of a physician's clientele and the tendencies of the courts, any medical act may bring the most cautious physician before the courts and result in his downfall. Certain startling decisions of the courts have compelled the *Société de chirurgie suisse* and the *Fédération des unions professionnelles suisses* to study the problem. The radiologists have likewise devoted a number of sessions to the consideration of this question.

Even though a physician is not found guilty of a professional misdemeanor, being summoned before a court of justice is a great annoyance. During the past few years the courts have been inclined to make the physician responsible for any discomfort that a patient suffers during a course of treatment, even though no charge of neglect or misconduct can be proved against the physician. Every physician should be well insured against such professional risks. In the opinion of Professor Juliard, a physician should insure himself against every possible untoward incident that may arise during a course of treatment.

SOCIAL MEDICINE

Dr Garozzi pointed out the steps taken in other countries in social medicine. He considered the origins of social medicine and of the social laws. He said that such movements date back to the most remote Greek and Roman antiquity. The physician should be without doubt the master mind in the social organization of public health. He defined then the notions of social medicine, social insurance, social hygiene and social pathology. It is important, if one is going to systematize, to make use of the recognized terminology. The author defined this terminology and outlined the role of each branch of social medicine. He noted the effects of unemployment on mortality, and the influences exerted by an occupation on the health of the individual. Social medicine should make special studies in biology and physiology, the hygienic conditions of work, the pathology of work, infections and occupational diseases. Social hygiene studies the legislative and economic measures capable of diminishing the consequences of disease. The social phenomena are of course in a constant state of flux. What was true yesterday may be no longer true tomorrow. The directors of social work should endeavor to look into the future, and university instruction should take account of these facts.

RESEARCH ON CANCER

Dr N Waterman mentioned the various methods of establishing predisposition to cancer. Physicochemistry has served as a basis for these researches. He took up his previous studies on the lysis of cancer cells in suspension, and the phenomena of agglutination in cancer. One can extract by means of ether the lytic and agglutinant substances of the cells of the reticulo-endothelial system. Experiments *in vivo* on these substances with a view to establishing a method of organotherapy are being carried on.

CANCER OF THE LARYNX

Dr L Van Den Wildenberg, professor of otorhinolaryngology at the Faculté de médecine de Louvain, discussed laryngeal cancer. He emphasized the need of an early diagnosis based on an examination with the laryngeal mirror and confirmed in all cases by a biopsy. As to what treatment is indicated, one is faced with the dilemma: surgery or irradiations. The author protested against the immediate employment of irradiation. In all operable cases, surgical intervention should be resorted to for which one of the three following methods may be indicated: laryngofissure, hemilaryngectomy, total laryngectomy. If one is in doubt between two procedures, the more extensive operation should be chosen. In case of a recurrence, the next more extensive operation may be done. Irradiations give good results in some cases but the cases are isolated and there is no way of foretelling the results. Irradiation, therefore, may be considered only as an adjuvant. Its indications are chiefly in inoperable cases or in the event that the patient refuses to submit to surgical intervention. When the tumor is extensive and it appears that total laryngectomy has not removed all of it, irradiation may be indicated to confirm the cure. If following total laryngectomy there is a recurrence, irradiation constitutes evidently the last therapeutic resource. But in all cases surgery is paramount and in the hands of an expert the operation is not particularly dangerous. The author projected on the screen recent portraits of a series of patients operated on, all of whom appeared to be in excellent health.

Treatment of Epitheliomas of Eyelids

Mr R Hubin of Liege states that since 1925 at the University Clinic of Liege, epitheliomas of the eyelids have been systematically treated with radium. The needle method is employed, doses of 1,800 and sometimes even 2,000 microcuries per square centimeter for a given thirty-six cases have been

treated. No recurrences have been observed. The percentage of complete recoveries was 88. In a few cases, the appearance of a slight xerophthalmia was noted. One case gave rise to a symblepharon. Three cases could not be followed up. The conclusions are therefore favorable to radium therapy. This treatment is not only more effective but also less mutilating than surgery.

TURKEY

(From Our Regular Correspondent)

Ankara, Jan 30, 1933

Government Monopoly of Drugs and Narcotics

Under the presidency of Gazi Mustapha Kemal Pasha, the council of ministers has assembled to formulate the policy that is to govern the amendment of the drugs and narcotics law. The bill will be presented at the reopening of the assembly. The international agreements of the 1923 conference at The Hague and the 1925 and 1931 conference at Geneva were given first attention. It has been decided that the three privately owned Istanbul laboratories where drugs and narcotics were manufactured, which last year were closed by the government because of violation of the law, will be refused permission to engage further in the manufacture of drugs and narcotics, and all other private manufacture is to cease. The amendment is to provide for special courts for the punishment of any one guilty of violating the law. The manufacture of drugs and narcotics for medicinal purposes in Turkey is to be carried on at a government laboratory, which also will make all exportations of crude opium. To limit the production of opium, special permission will have to be procured for cultivation. The cultivation of cannabis will be prohibited. The purpose of these measures is to make it impossible to grow more opium than is indispensable for legitimate export and for the supply of the government laboratory.

Outbreak of Scarlet Fever in Istanbul

A scarlet fever epidemic broke out in October among the preschool children and those in the primary schools. During the last week of October, 239 cases were reported, and during the last week of November, 291 cases. Sporadic cases have

Incidence of Scarlet Fever in Recent Years

Year	Cases	Deaths	Year	Cases	Deaths
1927	1,456	266	1930	1,638	204
1928	4,457	565	1931	682	101
1929	2,527	490	1932	1,791	95

been reported from other cities. Schools were not closed but the children were obliged to submit to the Dick test. The municipality opened ten immunization stations, where almost 75,000 persons were immunized. The vaccine was prepared at the serologic department of the Ankara Institute of Hygiene.

Increase in Consumption of Alcohol

At the annual meeting of the Green Crescent, the Turkish antialcohol society, measures were discussed for curbing the increase in the consumption of alcohol. According to the statistics of the alcohol monopoly, 5,736,232 liters was consumed in 1931 and there was an increase during 1932 of more than 500,000 liters. The Istanbul municipality has pledged to cooperate by revoking the licenses of automobile drivers who have caused a traffic accident while intoxicated. The society then decided to encourage the production and use of fruit drinks, to make use of educational films, pamphlets, posters, plays and slogans on the screen in motion picture houses, to establish clinics for alcohol addicts and to procure the cooperation of university students to establish antialcohol societies in their home communities.

Marriages

JAN DONALD SMITH Harrisburg, Pa., to Miss Geraldine Baker of Endicott, N. Y., Dec. 23, 1932

WALTER HARALI MINOR, JR., to Miss Elizabeth Van Antwerp, both of Mobile, Ala., February 11

JOHN L. HAMILTON, Barnesboro, Pa., to Miss Helen Wells of Steubenville, Ohio, Dec. 17, 1932

FREDERICK B. LITTELL to Miss Edna Slaughter, both of Norristown, Pa., Dec. 17, 1932

SOPHIA I. KIFFEGMAN to J. Harold Silliman, D.D.S., both of New York, Dec. 31, 1932

RALPH MAYO CLEMENTS, Luverne, Ala., to Miss Ima Carl Turner, February 19

Deaths

Clarence Albert Shore ☉ Raleigh, N. C., Johns Hopkins University School of Medicine, Baltimore, 1908, since 1908 director of the State Laboratory of Hygiene, member of the Society of American Bacteriologists, president of the Tri-State Medical Association of the Carolinas and Virginia, past president of the Wake County Medical Society, past president of the North Carolina State Board of Medical Examiners, instructor in biology, University of North Carolina, 1901-1904, aged 59, died, February 10, in the Rex Hospital, of mesenteric thrombosis

Robert Soutter ☉ Boston, Harvard University Medical School, Boston, 1899, member of the American Orthopedic Association, fellow of the American College of Surgeons, formerly instructor in orthopedic surgery at his alma mater, on the staffs of the Children's Hospital and Long Island Hospital, Boston, the Lawrence Memorial Hospital, Medford, the Massachusetts Hospital School, Canton, and the New England Peabody Home for Crippled Children, Newton, aged 62, died, February 21, in the Baker Memorial Hospital, of septicemia

Howard Wilson Levengood ☉ Santa Monica, Calif. Medico-Chirurgical College of Philadelphia, 1905, member of the American Academy of Ophthalmology and Oto-Laryngology and the Pacific Coast Oto-Ophthalmological Society, fellow of the American College of Surgeons, on the staffs of the Wilshire and Santa Monica hospitals, Santa Monica, and the Eve and Ear Hospital of Los Angeles, aged 50, died, January 30, of heart disease

William T. Pinkerton, Prairie Du Chien Wis., Louisville (Ky.) Medical College, 1879, member of the State Medical Society of Wisconsin, member of the board of education, aged 77, on the staff and formerly medical director of the Prairie du Chien Sanitarium and Hospital, where he died, January 31, of acute dilatation of the heart, chronic myocarditis and nephritis

Caryl Ashby Potter ☉ St. Joseph, Mo., Johns Hopkins University School of Medicine, Baltimore, 1911, fellow of the American College of Surgeons, served during the World War, on the staffs of the Missouri Methodist and St. Joseph's hospitals, aged 46, died, January 23, in Kansas City, of hypertension and arteriosclerosis

Louis Wardlaw Haskell ☉ Memphis, Tenn., Johns Hopkins University School of Medicine, Baltimore, 1903, chief of the division of surgery and professor of surgery, University of Tennessee College of Medicine, aged 54, surgeon in chief to the Baptist Memorial Hospital, where he died, February 10

John L. Miller, Corning, N. Y., University of Buffalo School of Medicine, 1894, member of the Medical Society of the State of New York, formerly mayor of Corning, health officer of the towns of Caton and Corning, school medical inspector and member of the state assembly, died, January 6

William Oscar Whittle, Baltimore, University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1916, member of the Medical and Surgical Faculty of Maryland, served during the World War, aged 46, died, February 2, of carcinoma of the stomach

Charles D. Frederick O'Hern ☉ Tulsa, Okla., College of Physicians and Surgeons, Baltimore, 1907, fellow of the American College of Surgeons, past president of the Oklahoma State Board of Medical Examiners, aged 54, died, Dec. 10, 1932, of organic heart disease

George De Vere Miller ☉ Cadillac, Mich., Rush Medical College, Chicago, 1902, president of the Tri-County Medical Society, fellow of the American College of Surgeons, chief of staff of Mercy Hospital, aged 57, died, February 16, of carcinoma of the prostate

Jacob Bruce Patterson ☉ Wooster, Ohio, Washington University School of Medicine, St. Louis, 1907, at one time medical missionary, formerly county coroner, aged 56, died, February 15, in a hospital at Berca, of injuries received in an automobile accident

George Rice Barden ☉ Providence, R. I., Bellevue Hospital Medical College, New York, 1896, fellow of the American College of Surgeons, on the staffs of the Homeopathic Hospital and St. Joseph's Hospital, aged 64, died, January 29, of influenza

Frank William Lose, Decatur, Ind., Northwestern University Medical School, Chicago, 1922, past president of the Adams County Medical Society, formerly on the staff of the Adams County Memorial Hospital, aged 38, died, February 5, of cellulitis

Alanson Halden Jones, Los Angeles, University of Southern California College of Medicine, Los Angeles, 1908, served during the World War, aged 50, died, January 22, in the Veterans' Administration Hospital, Palo Alto, Calif., of heart disease

Donald Edward Davenport ☉ Takoma Park, Md., College of Medical Evangelists, Los Angeles, 1915, formerly a medical missionary, on the staff of the Washington (D. C.) Sanitarium and Hospital, aged 46, died, February 15, of brain tumor

Eugene J. Donohue ☉ Antigo, Wis., Northwestern University Medical School, Chicago, 1906, past president of the Langlade County Medical Society, on the staff of the City Hospital, aged 52, died, February 15, of nephritis and influenza

Elmer A. Kell ☉ Hanover, Pa., Baltimore Medical College, 1900, past president of the Wyoming State Medical Society, formerly mayor and president of the school board of Rawlins, Wyo., aged 54, died, January 31, of heart disease

Bruce Webster Baker, Cordell, Okla., University of Louisville (Ky.) School of Medicine, 1914, member of the Oklahoma State Medical Association, aged 43, died, February 14, in the Clinton (Okla.) Hospital, of cholecystitis

Fenwick Rieff Deans, Miami, Okla., Barnes Medical College, St. Louis, 1897, Illinois Medical College, Chicago, 1907, member of the Oklahoma State Medical Association, served during the World War, aged 67, died, Dec. 31, 1932

Milton Hahn ☉ Arkansas City, Kan., Johns Hopkins University School of Medicine, Baltimore, 1907, served during the World War, aged 50, died, February 13, in the Research Hospital, Kansas City, Mo., of coronary occlusion

Arthur Le Sage, Fowler, Ind., Northwestern University Medical School, Chicago, 1898, member of the Indiana State Medical Association, formerly county coroner, aged 60, died, January 26, of acute dilatation of the heart

Mace H. Bell ☉ Vicksburg, Miss., Memphis (Tenn.) Hospital Medical College, 1900, member of the American Academy of Ophthalmology and Oto-Laryngology, aged 52, died, February 1, of Addison's disease

Hugh McLaren Gale, Bay City, Mich., McGill University Faculty of Medicine, Montreal, Que., Canada, 1882, member of the Michigan State Medical Society, aged 77, died, February 9, of heart disease

Clinton T. Zaring ☉ Greencastle, Ind., Medical College of Indiana, Indianapolis, 1885, on the staff of the Putnam County Hospital, aged 68, died, January 28, of arteriosclerosis and chronic myocarditis

John Knox Miller, Greeley, Colo., Rush Medical College, Chicago, 1883, aged 78, formerly on the staff of the Greeley Hospital, where he died, January 28, of arteriosclerosis and Parkinson's disease

James Lewis Perdue, Greenville, Ala., Medical College of Alabama, Mobile, 1875, member of the Medical Association of the State of Alabama, aged 81, died, Dec. 17, 1932, of cerebral hemorrhage

Martin Earl Harrell, New Madison, Ohio, Eclectic Medical College, Cincinnati, 1917, served during the World War, aged 43, was found dead, February 7, of chloroform poisoning, self-administered

Emanuel Lucas Hemion, Paterson, N. J., Jefferson Medical College of Philadelphia, 1894, member of the Medical Society of New Jersey, aged 62, died suddenly, February 20, of heart disease

Alexander Christy Dempster ♂ Uhrichsville, Ohio, Ohio Medical University, Columbus, 1896, past president of the Tuscarora County Medical Society, aged 66, died, February 7, of heart disease.

John E Henshall, Lakeland, Fla., Hahnemann Medical College and Hospital of Philadelphia, 1895, aged 74, died, January 7, in the Morrell Memorial Hospital, of carcinoma of the prostate.

Frederick Hooker, Syracuse, N Y, Chicago Homeopathic Medical College, 1886, for many years on the staff of the Syracuse General Hospital, aged 66, died, February 4, of pneumonia.

Joseph Edouard Huard, Fall River, Mass., College of Physicians and Surgeons, Baltimore, 1896, aged 60, died, Dec 30, 1932, of coronary occlusion, arteriosclerosis and hypertension.

Sheldon Leavitt, Chicago, Hahnemann Medical College and Hospital, Chicago, 1877, aged 84, died, February 1, in the Chicago Memorial Hospital, of uremia and prostatic hypertrophy.

Frank Emmett Gearon ♂ Chicago, University of Illinois College of Medicine, Chicago, 1909, on the staff of St. Anne's Hospital, aged 52, died, Dec. 23, 1932, of myocarditis and nephritis.

Martin L Dalton, Montvale, Va., University College of Medicine, Richmond, 1899, member of the Medical Society of Virginia, aged 56, died, January 2, of bronchopneumonia and influenza.

James Montgomery Irving, Cincinnati, Chicago College of Medicine and Surgery, 1913, formerly on the staff of the Longview Hospital, aged 55, died, Dec 19, 1932, of heart disease.

John Augustus Beuermann, New York, Universität Zurich Medizinischen Fakultät Zurich Switzerland, 1894, aged 70, died, January 2, in the Lenox Hill Hospital, of cerebral hemorrhage.

Elbert Hays Wilkes ♂ Little Rock Ark., College of Physicians and Surgeons, Little Rock, 1909, aged 54, died, January 25, in Chicago, of carcinoma of the stomach.

Thomas Franklin McGee, Lubbock, Texas Missouri Medical College St Louis 1884 aged 82, died February 2, of hypertrophy of the prostate and chronic nephritis.

Charles Kinsey Conard, Mount Vernon, Ohio, Homeopathic Hospital College Cleveland, 1890, member of the Ohio State Medical Association, aged 67, died, January 7.

Nathan Henry Reeve, Bristol Tenn., University of Nashville Medical Department 1874 Civil War veteran aged 85 died, January 26, of chronic bronchitis and senility.

Bernard J Murray ♂ Philadelphia, Medico-Chirurgical College of Philadelphia 1892, aged 73, died, February 14, in the Germantown Hospital, of cerebral hemorrhage.

Ernest Hollingsworth, Washington Ind University of Louisville (Ky) School of Medicine 1898 city health officer, aged 56, died February 4, of diabetes mellitus.

Edward Henry Moriarty, Mount Clemens Mich., Grand Rapids Medical College 1906 aged 50 died, January 30, in a local hospital, of chronic nephritis and uremia.

Theodore Gourdin Kershaw ♂ Augusta, Ga Medical College of the State of South Carolina, Charleston 1904, aged 49 died January 26, in Asheville, N C.

William F Bourne, Staten Island N Y University of the City of New York Medical Department 1879, aged 77, died February 16 of carcinoma of the throat.

Dail Willson Conger, Montesano Wash St Louis University School of Medicine 1906 aged 48 died, January 10, of a self-inflicted bullet wound in the head.

Bascom William Hamrick, Lee Fla Georgia College of Eclectic Medicine and Surgery Atlanta 1914 aged 52, died January 20 in a hospital at Valdosta Ga.

John F Ausmus, Speedwell Tenn Tennessee Medical College Knoxville 1892 aged 69 died February 11 in the Middleboro (Ky) Hospital of pneumonia.

James Robert Watson Danville Ill Rush Medical College Chicago 1880 aged 69 died Dec 29 1932 in the Lakeview Hospital of cerebral hemorrhage.

Andrew Evan Hardin San Diego Caln Cooper Medical College San Francisco 1897 aged 61 died suddenly January 16 of ruptured aortic aneurism.

Joseph Alphonsus Kelly, Yonkers N Y University of Michigan Medical School Ann Arbor 1898 aged 72 died February 5 of cerebral thrombosis.

Leroy L Imes, Denver, Physio-Medical College of Indiana, Indianapolis, 1904, aged 56, died, January 19, of pulmonary tuberculosis and chronic myocarditis.

Alleyne M Baldwin, Cleveland, Western Reserve University Medical Department, Cleveland, 1891, aged 63, died, February 4, of cardiorenal disease.

Frederick Washington Duncker ♂ Newark, N J, Bellevue Hospital Medical College, New York, 1866, aged 87, died, January 28, of heart disease.

William Herbert Crowell, Whiteville, N C University of Maryland School of Medicine, Baltimore, 1895, aged 66, died, February 12, of pneumonia.

Harold Percival Blodgett ♂ Leominster, Mass., Tufts College Medical School, Boston, 1902, aged 53, died, February 16, of cerebral hemorrhage.

William Franklin Hamilton, Tomahawk, Ark., University of Arkansas School of Medicine, Little Rock, 1908, aged 65, died, January 8, of nephritis.

Charles Thomas Adams ♂ Philadelphia, Jefferson Medical College of Philadelphia, 1896, aged 71, died suddenly, January 14, of chronic myocarditis.

Leander B Dean, Kenova, W Va., Kentucky School of Medicine, Louisville, 1894, aged 72, died, February 5, in the Louisa (Ky) General Hospital.

Benjamin P Wall, Berkeley, Calif., Hahnemann Medical College of Philadelphia, 1880, aged 79, died, January 20, of carcinoma and arteriosclerosis.

Nellie Laura Clark, Clovis, Calif., Medical Department of Omaha University, 1898, aged 64, died, January 23, of arteriosclerosis and epilepsy.

John H Blake, Wenatchee, Wash Kansas City (Mo) Medical College, 1893, aged 70, died, February 3, of a fractured hip received in a fall.

Oscar Howe Holder, New York, Harvard University Medical School, Boston, 1892, aged 66, died, January 15, of carcinoma of the left lung.

William Emory Neiberger, Clearwater, Fla., Chicago Homeopathic Medical College, 1882, aged 80, died, February 7, of pulmonary tuberculosis.

William Emmett Cuff, New York University of the City of New York Medical Department, 1891, aged 62, died, February 17, of heart disease.

Theodore L Gamblin, Burnside, Ky., Kentucky School of Medicine Louisville, 1896, aged 60, died suddenly, February 8, of heart disease.

Arthur Deane Dunn, Cashmere, W Va., Chattanooga (Tenn) Medical College, 1903, aged 70, died suddenly, January 20, of heart disease.

Samuel W Jenkins, Soddy, Tenn., Chattanooga (Tenn) Medical College, 1894, Civil War veteran, aged 84, died, January 19, of influenza.

Elias Nyman Figved, Boston Middlesex College of Medicine and Surgery, Cambridge, 1918, aged 60, died, Nov 18 1932, of heart disease.

Lincoln Morris Ernst, Harrisburg, Pa., Jefferson Medical College of Philadelphia, 1910, aged 45, died, February 5, of heart disease.

Charles F Howe, Atchison Kan., Northwestern Medical College, St Joseph, 1894, aged 72, died, Dec 25, 1932, of duodenal ulcer.

Marcellus N Brown, Cuero, Texas, Meharry Medical College Nashville, Tenn., 1893, aged 75, died, February 11, of pneumonia.

Joseph Cerny ♂ Wilber, Neb., Jenner Medical College Chicago 1899 aged 67, died, Dec 27, 1932, of carcinoma of the stomach.

C E Fuller, Morristown Tenn Medical College of Georgia Augusta 1869 Confederate veteran, aged 86, died, January 2.

Horace R Wells, Yakima, Wash University of Minnesota Medical School, Minneapolis, 1898 aged 68, died, Nov 25 1932.

Abram M Leland, Whitewater Wis Milwaukee Medical College 1900, aged 67 died suddenly, February 1, of heart disease.

Walton Haydon Marshfield Ore. (licensed, Oregon, 1893) aged 78 died Dec 15 1932 of cerebral hemorrhage.

William E Dodds, Richland, Iowa, Rush Medical College Chicago 1885 aged 77 died, February 1, of heart disease.

John H Cawood St Louis Barnes Medical College St Louis 1895 aged 65 died February 10 of carcinoma.

Bureau of Investigation

CRAZY CRYSTALS

Just One More Saline Laxative

During the past year a large number of inquiries have come to the Bureau of Investigation for information on the product known as 'Crazy Crystals,' put out by the Crazy Water Company of Mineral Wells, Texas. An Iowa physician who sent in some Crazy Crystals advertising wrote

'These people are flooding the country with letters like this and they accidentally sent one to me. I should think it would be easy to run this thing down and warn the public. What are Crazy Crystals? The middle west is riding on a wave of Crazy Crystals at present. They are wonder fully efficient in rupturing the appendix. I had one where the solution ran out of the abdomen after drainage, and re-crystallized in the sheets.'

A Better Business Bureau in the east telegraphed

'Desire information Crazy Crystals put out by Crazy Water Company, Mineral Wells, Texas. Claim to be a mineral water treatment. Appreciate information.'

A physician in the State of Washington who protested to the local Better Business Bureau against the radio broadcast-

also sold "Crazy Water Concentrated," which was said to be Crazy Water that had been evaporated to one-fifteenth of the bulk of the natural water.

The rather unusual name for the product is said to have been derived from the alleged fact that many years ago two women whose "minds were seriously affected" drank this water and "were soon restored to health and their minds became normal." Hence the well from which this water came was called Crazy Well. Later, when the thing developed commercially, there seem to have been four Crazy Waters, presumably from four different wells. According to the analyses furnished, all four contained the same ingredients, but these ingredients varied in quantity. In all of them, however, Glauber's salt (sodium sulphate) was the predominating ingredient. From the published figures, it appears that the most important ingredients of Crazy Water are, in terms of grains to each United States gallon

Sodium sulphate (Glauber's salt)	267
Sodium chloride (table salt)	24
Calcium bicarbonate	19
Magnesium bicarbonate	13
Magnesium sulphate (epsom salt)	7
Potassium chloride	5
Sodium carbonate (washing soda)	2

In the case of Crazy Water Concentrated, the main ingredients, in terms of grains to each United States gallon, are given, in round figures, thus

Sodium sulphate (Glauber's salt)	3858
Sodium chloride (table salt)	177
Calcium bicarbonate	49
Magnesium bicarbonate	49
Magnesium sulphate (epsom salt)	248
Potassium chloride	84
Sodium carbonate (washing soda)	64

It will be noted that the proportion of the epsom salt in the Crazy Water Concentrated is considerably greater than in the natural water. But whatever one accepts as the correct composition of the various Crazy Waters, it must be obvious that unless the claims for composition are wholly false, Crazy Crystals are, for all practical purposes, Glauber's salt with certain added amounts of washing soda and epsom salt common salt and other salines.

Crazy Crystals are advertised by typical "patent medicine" methods. In addition to radio talks, there are advertising leaflets of a type common to nostrum exploitation. We are told directly that Crazy Crystals have been used successfully in the treatment of

High Blood Pressure	Bad Complexion
Stomach Disorders	Excess Acidity
Auto Intoxication	Constipation
Nervous Ailments	Rheumatism
Neuritis	Diabetes
Arthritis	Liver and Bladder Troubles
Kidney Trouble	

THE CRYSTALIZER

YOU SHOULD KNOW THESE FACTS ABOUT CRAZY CRYSTALS

Among the most important facts about Crazy Crystals is that they are a natural mineral water product. They are composed of pure mineral salts and are not a drug. They are sold in a convenient form, and are used by millions of people in all parts of the world. They are a natural mineral water product, and are not a drug. They are sold in a convenient form, and are used by millions of people in all parts of the world.

PRESCRIBED BY MANY LEADING PHYSICIANS

Crazy Crystals are produced from Crazy Water at Mineral Wells, Texas. Mineral Wells water is used and prescribed by hosts of leading American physicians. Dr. J. S. Abbott, formerly chief of the United States Food and Drug Department, pronounced it the best mineral water in the world.

It is a noteworthy fact that of all the mineral waters produced and sold only two have ever passed the exacting laboratory tests to gain permission to be advertised in the physicians' national directory and the Mineral Wells water was one. Among its unusual characteristics are that it is crystal clear, odorless and of all the effective mineral waters the most palatable.

CRAZY CRYSTALS—THE BEST JOB AND HEALTH INSURANCE

It is a fact that Crazy Crystals are a natural mineral water product. They are composed of pure mineral salts and are not a drug. They are sold in a convenient form, and are used by millions of people in all parts of the world. They are a natural mineral water product, and are not a drug. They are sold in a convenient form, and are used by millions of people in all parts of the world.

CRAZY CRYSTALS

A MINERAL WATER PRODUCT

PRICE 15¢

Greatly reduced facsimile of some of the Crazy Crystals advertising leaflets

ing on Crazy Crystals, in which the stuff was described as "not a drug," wrote

"In urging people to buy and try the product [Crazy Crystals] the statement is made by radio that they are treating or curing themselves without the use of drugs." The latter statement appears to me to be somewhat misleading.

A radio station in Connecticut telegraphed

"Please send us complete information Crazy Crystals mineral water collect."

A Better Business Bureau wrote

"We have been advised that in recent advertising over the radio of the above product, it has been stated that the product is not a drug, but a mineral water. I assume that the statement that it is a mineral water is probably true. However, I question the statement that the product is not a drug. You are familiar with the composition of the product, as represented by the company, so I wonder if you can advise me whether or not the preparation would be regarded as a drug."

According to the advertising, Crazy Crystals are nothing more mysterious than the mineral constituents evaporated "from the mineral waters found at Mineral Wells, Texas, and Thorndale, Texas." While Crazy Crystals have been on the market for more than sixteen years, it is only within the past year that an aggressive and blatant advertising campaign has been carried on. In the earlier days the product that was most advertised was Crazy Water, although there was

Indirectly, by the testimonial route—and of course there are any number of testimonials—the product is alleged to have been a Godsend in a number of other conditions, such as "stricture of the bladder," piles, dilatation of the heart, etc. Much is made of an alleged testimonial credited to "Dr. J. S. Abbott, former chief of the United States Food and Drug Department," who is alleged to have pronounced Crazy Water "the best mineral water in the world." In some of the very old advertising of Crazy Water (not Crazy Crystals) there was published a testimonial from that professional testimonial-giver, W. H. Morse of Hartford, Conn., whose name appears on testimonials for more fakes than any other individual listed in the Bureau of Investigation's files.

Crazy Mineral Water (not Crazy Crystals) has been the subject of action on the part of the federal food officials in a number of cases. Sixteen Notices of Judgment have been published, between April 1913 and October 1928 declaring Crazy Mineral Water misbranded. Fourteen of the sixteen cases involved, not simple misbranding, but adulteration, charging that the specimens seized contained filthy, decomposed and putrid substances. The last two cases charged misbranding because of the false and fraudulent curative claims on the bottle labels—claims that might have led the public to believe that Crazy Water was curative in rheumatism, functional stomach diseases, cystitis, diabetes, Bright's disease, etc.

It is worthy of note that although the courts have declared that certain therapeutic claims that used to be made on the label for Crazy Water were false and fraudulent, the company still makes similar claims today, but is shrewd enough to confine them to the general advertising matter that cannot be reached under the National Food and Drugs Act. The incident is characteristic of "patent medicine" exploitation. The shrewd nostrum exploiter of today says less and less on the trade package which brings it within the purview of the National Food and Drugs Act, but about as much as ever in the newspaper advertisements, circulars and radio talks which, while technically subject to the penalties of the fraudulent advertising laws of the forty-eight states, are practically exempt from the operation of these laws because the laws themselves are seldom if ever enforced.

Summed up, it may be said that the dollar-and-a-half package of Crazy Crystals will accomplish nothing that cannot be accomplished equally well with a few cents' worth of Glauber's salt. The attempt, in the radio advertising of Crazy Crystals, to make the public believe that the preparation is not a drug is simply playing tricks with the English language. The Crazy Crystals product is just as much a drug as Glauber's salt, epsom salt or any other saline laxative sold for the treatment of human ailments.

Correspondence

"MATERNITY WARDS IN GENERAL HOSPITALS" REPLY TO DRS SKEEL AND RUNNELS

To the Editor—I am gratified to learn that the Cleveland Hospital Obstetric Society (*THE JOURNAL*, February 25, p 597) agrees with me on the main issue. "Actual physical separation and entirely separate personnel are essential to safety. Isolated separate labor and delivery rooms are necessary. The laundry of the maternity division should never be mixed with that of the medical and surgical floors, so that sheets, pillow cases, and the like that have been used by infected surgical patients cannot be sent from the laundry to the obstetric floor. No hospital has the moral right, and none should have the legal right, to accept cases for delivery without making physical and administrative preparation for their safe care. What more do I ask than this perfect separation?" I will concede that if the maternity ward of the general hospital were on a completely separated floor and that if the doctors, students, nurses, orderlies, laundrymen and maids always carried out an intelligent aseptic technique the equivalent of that practiced in the best surgical operating rooms, while even then it would not be possible to insist it is perfectly safe to treat maternity cases under the same roof with surgical and medical cases the element of danger would be reduced to such a minimum that the public would be willing to accept it against the expense and trouble of carrying out ideals.

The requirements respecting isolation of the maternity ward, of Drs Skeel and Runnels are even more exacting than those I set and I know from much painful experience that the vast majority of general hospitals do not—and cannot—carry them out. It proves to be humanly impossible as I showed in my paper. Therefore I ask for the complete architectural and administrative separation of the two services.

I must disagree with the statement that my argument is based on the ratio of epidemics in the two kinds of hospitals. The conclusions were based on the results of a study of the situation as it exists in many countries and particularly on my own personal experience in the hospitals of Chicago in my private practice and consultation practice and in the practice of an inner city emergency outpatient service.

I am fully aware that the septic mortality in any country is probably half due to criminal abortion, but in the

epidemics mentioned these were not included, and in the few times the general septic mortality was referred to it was to show that, in spite of hospitalization of an increasing number of confinements, the mortality kept up. Sigwart is quoted on this point. Further, not the cases of infection brought to a hospital are considered, but only those developing in the wards.

I regret that I did not make myself clear on the relative importance of air-borne and indirect contact infection. I cannot state my opinion any better than in the three different sentences I devoted to this particular point, and for which I respectfully ask reconsideration.

The single object of the paper, was again to call attention to the danger that lurks in general hospitals for the maternity case and to urge that an ideal be set up for which all may work.

J B DELEE, M D, Chicago

SUBOCCIPITAL MENINGOCELE

To the Editor—In *THE JOURNAL*, January 28, is published a report by Dr O H Fulcher of the removal of a suboccipital meningocele. Concluding his report, Dr Fulcher says "Suboccipital meningocele is a condition that is rare. Usually the treatment has been quite unsatisfactory. This is the first case, to my knowledge, that a suboccipital meningocele has been successfully treated by a one-stage operation."

In September, 1928, while in the Iowa University hospital, I operated on a railroad employee from Davenport, Iowa, who was 40 years old and who had a suboccipital meningocele the size of the patient's fist. This was a one stage operation and a cure was accomplished. In 1929, in the same university hospital, I operated on a child, 2 months old, from Sioux City, with an enormous suboccipital meningocele, which was the size of the child's head. The same child also had a lumbar spina bifida. The suboccipital meningocele was successfully treated by a one-stage operation and the child is at present 4 years old and well.

ANATOLE KOLODNY, M D, Sioux City, Iowa

REVIEW OF CUSHING'S "INTRACRANIAL TUMORS"

To the Editor—Among the things that I particularly admire about *THE JOURNAL* are the excellent critical reviews of books. Rarely are they inadequate and seldom unjustly critical, and I have almost never seen a stupid review. I cannot refrain from making some comment on the astonishing paragraph you have just published concerning Dr Cushing's monograph on intracranial tumors (*THE JOURNAL*, January 28, p 284). In drawing your attention to it, I do so fully realizing that as a student of Cushing I may be a prejudiced critic.

Quite apart from the spirit of the review, I shall only protest against the errors of statement. Beginning with his fourth sentence the reviewer says that Cushing's mortality rate remained fairly constant until 1930 and that it then dropped for no adequate reason. The whole point of the book is thus missed for had the reviewer but glanced at the tables, especially those on pages 142 and 143, he would have seen that there has been a steadily progressive drop in the mortality rate since 1912 and furthermore, that Dr Cushing has been at pains to give an entirely adequate explanation of the remarkable drop that has occurred since 1928 (not 1930, as stated by your careless reviewer). I should like to know what the reviewer means by the phrase "trephining through biopsies." All operations on the cerebral hemispheres have involved the reflection of a bone-flap and any one who is even remotely familiar with the technique of Dr Cushing's school could not possibly have referred to biopsies trephining. It is a type of ignorance that would be understandable from neurologic surgeons of the prewar period but it is incomprehensible as coming from the pen of any one on this side of the water at the present time.

Finally, one observes in the next to the last statement the phrase "Also the tables give no information except as to life" What the reviewer could have had in mind would be impossible to imagine, for Dr. Cushing is careful to state that his report has to do with his surgical mortality statistics and the various pathologic types of brain tumor, and that he proposes to give no details concerning ultimate expectation of life, since this has already been adequately dealt with in his report with Bailey.

J F FULTON, M D, New Haven, Conn

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

DIAGNOSIS AND TREATMENT OF MULTIPLE STONES IN COMMON DUCT

To the Editor—I have a patient aged 27, who with a past history of typhoid eight years ago, and pregnancy with twins two years ago has had daily attacks of sharp epigastric pain radiating round the body at this level coming on about two hours after each meal, for the past one and a half years. Physical examination, roentgenograms of the gastro-intestinal tract, gallbladder and kidneys, and all laboratory tests gave apparently normal results. Nothing relieved the pain except an opiate. A diagnosis of chronic gallbladder disease was made by elimination and at operation in June of this year a small, apparently normal gallbladder was removed together with twenty small millet seed stones which were found closely packed into the mouth of the cystic duct. There were no stones in the common duct and a normal appendix was removed at the same time. There had been no jaundice and gallbladder bile had been aspirated with the duodenal tube on several occasions previously. The patient made an excellent recovery and felt perfectly well for about two months. Now for the past two months she has had similar attacks of sharp agonizing pain in the epigastrium, this time without radiation and coming on from half an hour to an hour after her noon and evening meals only. The pain is very intense and is relieved only by morphine. Diet seems to have no part in the picture, since she will have an attack following nothing more than a glass of milk. There is no vomiting or diarrhea with these attacks, but a very marked degree of flatulence and belching of gas. There is no tenderness or spasm in the abdomen, in fact physical examination is entirely negative except for a hemoglobin of 60 per cent. There is no jaundice, the stools are always dark, no stones are found in the feces, and chemical examination of the blood and repeated roentgenograms are normal. The blood cholesterol before operation was 190 following operation 140. I am greatly concerned about this patient and anything you may be able to offer in the way of diagnosis, further study or treatment would be greatly appreciated. If there are any other questions you may have in mind about further history or examination, kindly use enclosed self-addressed envelop at your earliest convenience. Please omit name.

M D, New York

ANSWER—When a surgeon removes a gallbladder containing stones he can never say with certainty that no stone is left in the common duct. This statement applies with particular emphasis when the stones are small, especially the size of millet seed. Two well recognized facts emphasize this assertion.

1 Digital palpation of the unopened common duct and ampulla is an unsatisfactory method of examination, because stones several times the size of the ampulla may be overlooked.

2 Such stones may even be overlooked when the duct is explored by probe and scoop, because they lie high in the hepatic duct or may even be intrahepatic. Later they are washed down and produce colic and obstruction. The post-operative course of this patient makes it practically certain that she is suffering from one or more common duct stones. The absence of jaundice or of stones in the stools does not eliminate this condition. A van den Bergh test on the blood during the height of the attack, or the examination of several urine specimens for bile some two to six hours after, will often be confirmatory of delayed drainage, if not of obstruction. Such fine stones often pass the ampulla, and sufficient time should be allowed for this to occur. The surgeon must be guided by the intensity and frequency of the attacks as to how long he will wait. It is not uncommon for such attacks to occur for months or even several years after operation and then, decreasing in frequency, finally disappear. A so-called gallbladder diet is advisable but offers no assurance against attacks, as this case demonstrates. If life becomes untenable because of severe and frequently repeated attacks, or if jaundice occurs, the duct must be explored. It must be emphasized that the appearance of jaundice in such a patient, particularly

if persistent, is far more serious than in one who has a gallbladder. Exploration of the common duct under such conditions, i. e., the absence of a gallbladder, requires consummate skill and deliberation. The duct must be repeatedly explored with as large a scoop as can be passed into the duodenum, by way of the ampulla, and the hepatic duct should be flushed out with physiologic solution of sodium chloride by means of a cannula, in order to dislodge any stones not reached by the scoop. Tube drainage of the duct for ten days or so is advisable.

SURGICAL TREATMENT OF SPASTIC COLON—HIRSCHSPRUNG'S DISEASE—CUTTING PELVIC NERVE

To the Editor—1 Is there any kind of operation for a spastic colon? 2 In Hirschsprung's disease sympathectomy is done. Would this operation help a spastic colon? 3 Is there any deleterious after-effect from cutting the pelvic nerve? Please omit name.

M D, Pennsylvania

ANSWER—1 Exploratory laparotomy, appendicostomy for the purpose of irrigation, partial and total colectomy, and ileosigmoidostomy have been performed in the treatment of spastic colitis. It is the opinion of medical authorities, however, that "such surgical procedures for the treatment of this condition are unnecessary, unjustifiable and cannot be too strongly condemned (Barker, L. F. The Spastic Colon and Mucous Colopathy, *Am J M Sc* 178 606 [Nov] 1929; Friedenwald, J., Feldman, M., and Rosenthal, L. J. Mucous Colitis, *Ann Int Med* 3 521 [Dec] 1929).

2 The sympathetic fibers to the colon carry mainly impulses which depress motility and inhibit tonus. Sympathectomy of the type performed for Hirschsprung's disease would probably be of no value in spastic colitis, since the motility and tonus would be increased in a bowel already hyperkinetic and with disturbances of coordination.

3 Cutting of the pelvic or, as it is now termed, presacral nerve may result in vesical and rectal damage of varying degree. The deleterious effects produced are chiefly:

(a) Loss of ejaculatory power in men; the reproductive function in women is not affected by this operation.

(b) Diminution of tone of the internal sphincter of the rectum, part of which is recovered within several weeks.

(c) Flaccidity or decrease of motor power of the trigon of the bladder, with resulting residual accumulation of small quantities of urine.

TREATMENT OF HYPERTENSION

To the Editor—Can you give me suggestions for the treatment of hypertension? Systolic pressure varies from 200 to 230 and better, and diastolic about 80 points lower, following the systolic in its variations. The patient, a woman, aged about 55, has a valvular cardiac disorder of about twenty years standing. There is not much edema of the feet, and she has learned to control that with digitalis. Roentgenograms show only slight cardiac enlargement. Examination of the urine shows 4+ albumin, but there are no casts and it is otherwise negative. There is a tendency to overeating, she weighs about 180 pounds (80 Kg). A reduction of diet and a lowering of pressure by means of thioacetamide causes weakness with more marked shortness of breath and like symptoms. She feels better when the pressure is high and she is carrying on with house work. How great is the danger of letting the high pressure continue? What do you think of the value of Viscyte (Bischoff)? I would appreciate any other suggestions. Chemical examinations of the blood, made several times, give negative results. Rest in bed lowers the pressure very little and brings on more weakness. Please omit name and address.

M D, Alabama

ANSWER—In every instance of hypertension, a working knowledge of the degree or absence of renal insufficiency is of paramount importance. While not giving information of a precise nature, the phenolsulphonphthalein excretion test (in a case not showing manifest hepatic insufficiency), together with the concentration and dilution test, is of distinct value, especially when there are no chemical changes in the blood. An ophthalmoscopic examination is indicated, for, by virtue of the degree of retinal arteriosclerosis and presence or absence of hemorrhages and exudates, one may obtain an index of the degree of cerebral arteriosclerosis. The clinical history and examination point to an associated generalized arteriosclerosis with renal arteriosclerosis or nephrosclerosis and cardiac decompensation. The cause of this marked albuminuria needs to be explained, for benign nephrosclerosis with such a mild degree of cardiac failure usually is not sufficient. One must consider a nephrosclerosis now in the malignant phase or a chronic mixed nephritis with the nephrotic component predominating. Repeated examinations of fresh specimens of urine are indicated because casts disintegrate in urine of low specific gravity or low sodium chloride content, or if alkaline,

and because red cells become hemolyzed in urines low in sodium chloride. In view of the marked proteinuria, the blood plasma albumin, globulin and cholesterol should be determined. Edema may be anticipated if the albumin falls below 23 per cent, whereas a high cholesterol fraction points to a nephrotic component. The danger from such continued high blood pressure is wholly dependent on the integrity of the myocardium and of the cerebral vascular tree. Further studies of the renal function are of prognostic importance. The diet should contain bland simple foods and from 150 to 175 Gm of protein daily. Restricted activity with from one to two hours of complete rest after each meal is to be advocated for an indefinite period, depending on the degree of improvement, and mental and physical relaxation is to be practiced. A mixture of sodium bromide, 0.65 Gm (10 grains), and potassium iodide, 0.3 Gm (5 grains) three times daily, may be tried. Like many other vasodilators, Viscyte may not be expected to be of much if of any value in instances such as this.

X-RAY TELANGIECTASIA

To the Editor—A woman aged 31 is in good general health. Eleven years ago she had symptoms of thyroid hyperactivity and following a course of medical observation and treatment in a hospital she consented to an operation. An almost vertical incision was made and the patient believes that only a ligation of blood vessels was done and that none of the gland was removed. She was then advised to undergo roentgen therapy at the same hospital. She received between fifteen and twenty treatments at bimonthly intervals. She soon noticed hoarseness. Four or five years following the roentgen therapy she noticed a few capillary enlargements in the skin vessels of the neck. These have gradually increased in size and in number until at present the entire anterior surface of the neck and suprasternal region shows a bluish mottling with prominent dilated capillaries. There are no keratotic areas. She is worried mostly on account of the cosmetic defect of the vertical scar and the appearance of the skin of the neck. How much further cosmetic damage may be expected locally and how much damage to her general health? What is the likelihood of a carcinoma developing? Can anything be done to improve the appearance of the skin? From the medico-legal point of view is the hospital liable? Kindly omit name.

M D New York.

ANSWER—The condition mentioned is telangiectasia which is a well known sequela to roentgen and radium treatment. The telangiectasia has probably reached maximum development. It usually persists for many years and may be permanent.

In some instances the telangiectasia improves and disappears in time. If there is no atrophy or sclerosis present now these conditions may not and probably will not develop in the future.

It is possible but unlikely that keratoses and ulcers may develop in the future and it is even possible that cancer may occur. If so the epithelioma will be preceded by either an ulcer or a keratosis.

The laws differ in the various states. A charitable institution is usually exempt but the physician who gave the treatment or the head of the department is often held responsible. In the case of a private patient it is usual for the physician who had charge of the patient to be held responsible.

The appearance can be improved by expertly applied electrolysis but such treatment is tedious and time consuming and therefore expensive. It also requires perseverance. Ultraviolet radiation if judiciously applied often gives good results. On the whole treatment for large areas of intense x-ray telangiectasia is not especially satisfactory.

TOLERANCE FOR POTASSIUM COMPOUNDS

To the Editor—I have a patient who has sufficient myocardial degeneration to give him edema and ascites. The kidneys show no damage. Since reading the article in *THE JOURNAL* about the influence of sodium and potassium on edema I have treated this patient accordingly. I have had to increase the potassium to 75 Gm a day. Now I am rather anxious to know how much potassium in the form of salts can be given without danger and also whether there is any way to tell the urine for the amount of potassium excreted. I have access to the university chemistry department and therefore have all the facilities necessary for the examination. The only method of examination that I know involves the use of platinum and the cost is prohibitive to the patient. I shall greatly appreciate the information. Please omit name.

M D New Jersey

ANSWER—No definite statement can be made that will cover individual potassium tolerance and its toxicity has not been well investigated. Large doses of various forms of potassium have been administered and reported. Blum, Aubel and Levy (*Chimie et Industrie Médicale Paris* 45:150, [Nov 18] 1921) gave sodium chloride and doses of 10 Gm daily and

that the limits are from 75 to 25 Gm a day and that they desired to increase the dose but that these salts were not well tolerated in amounts above 25 Gm because of diarrhea and circulatory damage. Wilks (*Guy's Hosp Rep* 9:173, 1863) gave potassium nitrate, 18 Gm daily, in renal dropsy with "satisfactory results." Addison (*Canad M A J* 18:281 [March] 1928) reports giving 8 Gm of potassium citrate, from 6 to 8 Gm of potassium bromide or from 6 to 8 Gm of potassium chloride over considerable periods of time and recommends their use. Bunge states that in some cases the food contains from 50 to 100 Gm of potassium daily without showing toxicity. Osman (*Guy's Hosp Rep* 77:386 [July-Oct.] 1927) gives large doses of potassium citrate in cases of renal edema. He gave 32 Gm to a child weighing 20 Kg daily in combination with sodium bicarbonate. He gave 38 Gm to a child aged 14 until the edema was reduced and then maintained the dosage at 24 Gm daily. Osman gave 66 Gm of potassium citrate to a man aged 23. No clear statements of serious effects were recorded, even though large doses of various potassium salts were given.

The quantitative determination of potassium in the urine is quite simple and accurate by the method of Breh and Gaebler for serum potassium (*J Biol Chem* 87:81 [May] 1930). Urinary albumin, if present, is removed by acidifying and boiling, the ammonia is removed by boiling with sodium carbonate, and the chlorides are precipitated with silver nitrate. The urine is then diluted and filtered. Enough of the filtrate to contain 0.2 mg of potassium is then used for the potassium reagent. Of course, the amount of potassium excreted varies with the diet and medication and it may require a little practice to judge the amount of filtrate to use.

ARTHROPATHIA PSORIATICA

To the Editor—I have encountered an interesting case that I have not been able to explain, namely, the presence of a complication to psoriasis—a general arthritic manifestation. The patient is a woman aged 40 who gives the following history. No familial tendency to psoriasis has been observed. Eight brothers and sisters are well. At the age of 13 a slight psoriasis of the flexor surfaces of the elbows and knees developed. Menstruation began at 18 not characterized by symptoms the periods lasting only one day and the amount of flow being very slight. The patient married at 19 and has had two children the birth of whom was characterized only by slight pyelitis for two weeks after delivery. There was no skin manifestation during pregnancy. Remissions of psoriasis occurred for periods of three or four years with return of the skin lesions. Menstruation ceased at 37. The patient indulged in a high protein high spicy diet last summer and a marked increase in the spread of the skin lesion developed being universal except for the face and the palms of the hands. Five weeks ago a marked universal stiffening arthritis developed with swelling of the joint areas associated with severe pain on motion. Every joint in the body has been involved and been very painful. There has been marked swelling of the ankles and feet. The systolic blood pressure is 112 diastolic 60. The temperature is normal. The urine is normal except for a trace of albumin. Treatment for a period of four weeks has been as follows: (a) nonprotein diet with complete removal of all proteins; (b) white petrolatum to the skin; (c) three intravenous injections of ampules of choline salicylates and iodides weekly; (d) moniodocinchophen anodupyrine by mouth; (e) catharsis. At present the patient shows marked improvement except for slight joint pains and edema of the ankles. Her skin is markedly improved and appears normal except for redness where her lesions have existed. I am interested in knowing the cause and prevalence of arthritic manifestations in psoriasis or whether in this case there exists an associated arthritic condition. What is the recognized treatment of the condition described? Is there an associated endocrine disturbance (ovarian here) to account for her condition? Would endocrine therapy be useful? I should appreciate being enlightened concerning this case.

JACOB GOLDBERG M D Long Branch, N J

ANSWER—A condition known as arthropathia psoriatica has been described in the literature. Arthritis and psoriasis apparently may be combined in two ways. Small scattered patches of psoriasis are not infrequently seen in patients with chronic infectious arthritis the two diseases apparently being independent. True psoriatic arthritis however seems to be the result of long continued uncontrolled psoriasis and usually comes on months or years after the onset of the skin disease. Some investigators have made an effort to determine a specific type of arthritis but it would seem from the reports that such a differentiation is difficult. Not all of the authors are in agreement as to what the peculiarities of this specific arthritis are.

The treatment should be directed toward cure of the arthritis as well as toward the psoriasis. The treatment given in this particular case seems to have been well rounded and logical. A warning should be issued about cinchophens because of the recent reports of fatal hepatitis following the use of this drug.

This patient also seems to show disturbances of the endocrine system in the history of late menstruation and early menopause, and for that reason hypodermic ovarian therapy, with perhaps small doses of thyroid by mouth, might be of value.

One other point in the history, namely, the story of postpartum pnelitis, brings up the question of possible focal infection. It is strongly advised that any focus of infection that this patient may exhibit should be eliminated.

Arthropathia psoriatica has been described in the following articles:

- Scholl, O. K. A Case of Psoriasis Arthropathica Complicated by Acrodermatitis Atrophicans. *Dermat. W'chenschr.* 81: 1223 (Aug. 22) 1925.
- Zellner, E. Arthropathia Psoriatica. *Munchen med. W'chenschr.* 75: 903 (May 25) 1928.
- Morgenstern, J. Psoriatic Arthritis and Psoriasis in Arterial Diseases. *Hann. Arch. f. inn. Med.* 12: 273 (Feb.) 1926.
- Hench, P. S. Arthropathia Psoriatica. *Staff Meetings of the Mayo Clinic* 2: 89 (April 27) 1927.

BLOOD COAGULATION AFTER DEATH

To the Editor—During a recent examination after the death of a patient from a coronary occlusion, a phenomenon occurred that seems to be unusual. When the blood (about 30 cc) was taken, it was found to be without clotting properties. The calcium content was 14, and, when whole blood of known normal clotting time of the same type was added, a clot formed which dissolved in about five minutes (equal parts of the two samples of blood were used). The addition of calcium salts did not produce clotting. The patient who had been in good health previously, died suddenly unattended. For my personal information, I should like to know the following: Does this occur normally as a postmortem change? (I have not seen it in about 800 cases.) In what types of poisoning (other than phosphorus or chloroform) may this phenomenon be present and how could one determine the presence of these substances? Could you suggest a possible cause other than the causes mentioned, for such a phenomenon? The platelet count (post mortem) was 56,000. The complete postmortem examination showed nothing pathologic except the small plug in the middle third of the right coronary artery. Please omit name and address.

M D

ANSWER—These are difficult questions to answer satisfactorily. Nothing is said to indicate whether or not any clotting of the blood had taken place spontaneously after death or whether the body had been injected with preserving fluid. It is possible that clotting may have taken place in the usual way after death and that the blood which was found to be "without clotting properties" simply represented serum and blood corpuscles that had been squeezed out of the clot. That the clot which formed on the addition of whole blood dissolved in about five minutes is a curious phenomenon. The only explanation one can offer would seem to be that some factor was present which neutralized or removed the antitryptic properties of the blood. The platelet count of 56,000 after death cannot be regarded as of any significance in indicating the number of platelets present during life.

RECURRENT ERYSIPELAS INFECTION OF LEG

To the Editor—A girl, aged 15 years, for the past five years has suffered from attacks of an acute, habitually recurrent, erysipeloid infection of the right leg. I do not believe that it is a true erysipelas or exactly a lymphangitis, although it resembles both closely and causes great local distress and general prostration during an attack. Attacks recur at intervals of from three to six weeks and the temperature rises to from 102 to 104 F for two to four days, after which it quickly subsides and she passes to comparative ease and comfort. The leg for the past two years has remained swollen between attacks. I have been unable to influence the frequency or severity of these attacks. I have tried all the usual textbook local applications and fever mixtures, with opiates for pain. Between spells she has been given a series of small doses of erysipelas antiserum, a course of mixed streptococcus vaccine, and foreign proteins. After the removal of only slightly diseased tonsils an autogenous vaccine was made and used. No other foci of infection have been located. Any suggestions as to further treatment would be greatly appreciated. Would roentgenograms be of any value?

W R MEEKER, M D, Mobile, Ala

ANSWER—So-called recurring erysipelas of the leg is thought by some to belong in the category of cellulitis. It is unusual for recurring attacks to take place at such frequent intervals and with such a marked constitutional reaction. A persistent solid edema of the affected parts is the usual sequel of the infection. Since Birkhaug introduced the antitoxin treatment of erysipelas in 1926 there have been a number of reports on its use in recurring cases. Symmers showed in a series of 705 cases that the intramuscular injections of the concentrated antitoxin in 10 cc doses does not confer immunity or prevent recurrent attacks, its value lying solely in its ability to control the immediate attack and shorten the duration of the disease.

Birkhaug treated sixty-eight cases of recurring erysipelas with gradually increasing doses of streptococcus toxin alone or a mixture of erysipelas toxin with killed streptococcus. The initial dose was 0.1 cc intramuscularly and was gradually increased every ten days to a maximum of 3 cc. In six cases an erysipelas-like eruption was observed along the route of the relapsing attack with a febrile reaction. In the others, apparent immunization against recurring attacks was brought about. Amoss has treated successfully twenty-three cases of recurring erysipelas of the leg. He found that the skin of the affected leg reacted more intensively to the endodermal injection of 0.1 cc of streptococcus filtrate than the skin of the other leg or arm. Treatment was begun with subcutaneous injections of increasing doses of 0.1 cc of 1:100 dilution of the filtrate from the strain that gave the greatest reaction. Every five days the dose was doubled and then continued with 1:10 dilution and finally the undiluted filtrate. Amoss also emphasizes the importance of searching for breaks in the skin between the toes and in every case found a fungal infection of one or both feet (epidermophytosis) and in a few cases was able to grow hemolytic streptococci from the debris round the edge of the toe nails. The following treatment of the toes is advised: At night a Whitfield ointment fortified with 1 per cent thymol iodide is applied. In the morning the toes are cleansed with soap and water and wiped with 70 per cent alcohol, and 1 per cent solution of thymol iodide in 70 per cent alcohol is applied. During the day a dusting powder is used containing salicylic acid 5 parts, thymol iodide 1 part, boric acid 50 parts and starch 50 parts. With proper treatment of the feet it is possible that immunization may not be necessary.

Roentgenograms would be of questionable value.

The following references may be consulted:

- Birkhaug, K. E. Immunization with Soluble Toxin from Streptococcus Erysipelatis Against Recurring Attacks of Erysipelas. *THE JOURNAL*, March 19, 1927, p. 885.
- Birkhaug, K. E. Bacterial Allergy to Streptococcus Erysipelatis in Recurring Erysipelas. *THE JOURNAL*, June 23, 1928, p. 1997.
- Symmers, Douglas. Antitoxin Treatment of Erysipelas. *THE JOURNAL*, Aug. 28, 1928, p. 535.
- Amoss, H. L. Recurring Erysipelas. *Ann. Int. Med.* 5: 500 (Oct.) 1931.

SENILITY WITH PAROXYSMAL TACHYCARDIA AND FIBRILLATION

To the Editor—A man, aged 75, had a lifetime of robust health excepting for two or three annual attacks of acidosis with diarrhea since youth, which stopped five years ago. The vital organs are normal excepting for functional heart disturbance, which began a year ago. The arteries are soft. The blood pressure averages 145 systolic, 75 diastolic. The average pulse is 64. Motile spermatozoa were found when the vesicles were massaged in search of infection. The appetite has never failed "everything is eaten" excepting when the patient is on a diet. He has eight hours of restful sleep nightly. He has had one bowel movement after breakfast for years. He is a moderate user of alcohol and tobacco. There is no history of venereal disease. He comes from a long lived family in which there have not been neuroses or psychoses. A careful search was made for infections. None were found in the tonsils or gallbladder. Streptococcus viridans was obtained from a tooth root and eliminated. Many customary colon bacteria were found but cultures indicate that no one in particular is a sensitization factor. Nevertheless considerable colonic fermentation and putrefaction has existed for a year. Intestinal antiseptics seem to control all but the gas formation. A year ago occasional heart flutter appeared at times. Tachycardia is transitory. Bradycardia occurs for short periods far apart. Competent consultants have been seen. Cardiograms show normal action much of the time. At other times there is fibrillation, the irregularity of heart action progressive and increasing. Experts are not agreed on a maintenance dose of digitalis, the drug seems to be poisonous at times. Small doses of quinidine have proved helpful. A vegetarian diet is helpful, cured meats and fish being allowed. Recently distressing polyuria has occurred occasionally, lasting a few hours. Limpid urine in great quantity is passed every twenty minutes, then the condition stops as suddenly as it begins. Profuse perspiration has a weakening effect at times. The patient feels hot, with cold perspiration and a normal temperature. Rest periods of longer and longer duration have been taken. The patient now spends most of the day on a couch. He is failing day by day. Periods of good days and bad days have alternated from the first. What is the matter with him? Please omit name.

M D, New York

ANSWER—The story suggests senility, associated with the usual arteriosclerosis, especially involving the cardiac and mesenteric vessels. If the basal metabolic rate has not been determined, it should be, in order to rule out the thyroid as a cause for the paroxysmal tachycardia and fibrillation. To control the colonic fermentation and putrefaction, a change of the intestinal flora to the aciduric type would be advisable. This can be accomplished by the use of acidophilus milk. If necessary, lactose may be added to the diet. Empirically, iodides should be given as an alternative.

CHEMICAL IRRITATION FROM FUMES AND VAPORS IN OXYACETYLENE WELDING

To the Editor—A man aged 43 suffers a pustular chemical dermatitis of the lips chin nose and nostrils with extensive cellulitis following exposure to fumes arising from an oxyacetylene welding process. The process said to be responsible was as follows: Two old metal plates assumed to have been galvanized, each 14 inches wide and one-fourth inch thick, were to be welded by an oxyacetylene torch. The operator had been at the work only two days but wore a respirator and goggles. It was necessary for him to keep his face close to the work. Chemical analysis of a sample of the metal showed the presence of phosphorus sulphur and manganese as well as iron and carbon. Would the fumes of oxidation from the heat of the torch give rise to the dermatitis mentioned especially the fumes of sulphur and phosphorus as ordinarily present in galvanized iron and would the fumes or manganese give rise to nausea and subsequent weakness?

A D LAZENBY M D Baltimore

ANSWER—No warrant exists for the association of this condition with any one dangerous agent in the mixture of several that attend oxyacetylene welding work. Nonetheless, much justification exists for classing the condition as the result of "mixed intoxication."

Commercial acetylene gas may contain hydrogen arsenide ("arsine"), hydrogen phosphide ("phosphine") and sulphur compounds. Incomplete combustion may give rise to carbon monoxide. The galvanized coating, assumed to have been present, paves the way for zinc poisoning, which is a frequent result of torch work on galvanized surfaces. Zinc poisoning alone would account for the greater number of happenings described in this case, particularly the "weakness," which always follows acute zinc poisoning. Metal fumes are known to be irritating to the eyes and mucous membranes of the nasal passages. The zinc oxide, which is likely to make up the greater portion of the fumes, may lead to slow mechanical action under the mask worn for protection.

The combination of chemical irritation from mixed fumes and vapors, together with some extent of mechanical irritation, both followed by bacterial invasion, provides a reasonable explanation for the "pustular dermatitis" with "extensive cellulitis."

DÖDERLEIN BACILLI IN VAGINAL SMEARS

To the Editor—In making microscopic examinations of leukorrheal discharges especially in girls and young women I frequently find in smears long chains of very large bacilli. Stained with methylene blue these bacilli are dark. They are much larger than other bacteria which usually occur in the same smear with them. The proportion of their length to their width is about that of half a match stick. Their ends are square cut and they usually appear in long chains. What are these bacilli and what is their significance if any? Please omit name and address.

M D Georgia

ANSWER—The organisms described correspond to the bacilli of Döderlein, which are normally found in the vagina in association with desquamated squamous epithelial cells. They are long straight rods gram positive, nonmotile and anaerobic. They are responsible for the acid content of the vagina by the elaboration of lactic acid and thereby act to protect the vagina against the invasion of pathogenic organisms. Döderlein bacilli may be absent in the smear during an acute infection (i. e., gonorrhea), and the return of these long rods and squamous epithelium in the smear picture during the course of treatment is looked on with favorable significance.

SYNOVIAL CYST OF WRIST

To the Editor—I have a case in which a cyst appeared over the carpal bones on the dorsum of the wrist. It was removed surgically through a skin incision and contained thick gelatinous material. It recurred within ten days as large as ever was again evacuated through a needle. It recurred within ten days and was evacuated again with a needle. Please advise the best method to prevent recurrence without making another incision. Does this cyst originate down between the carpal bones? Will several evacuations through a needle cure the condition? I had in mind injecting a few drops of phenol through the needle to obliterate the tract or using the cauterizing effect of a small diathermy electrode for the same purpose. I have never seen one quite so stubborn as this one is. I would appreciate an immediate reply giving suggestions if convenient as I want to treat the patient again as soon as possible. Please omit name when published.

M D Oklahoma

ANSWER—The successful treatment of the condition described depends on a careful excision of the entire cyst and this is sometimes a rather difficult operation because the slender stalk of the cyst must be followed through the extensor tendons to the synovial lining of the joint from which it arises. Although the cysts occasionally represent a protrusion of the synovial lining of the tendon sheath of the extensor tendons at the wrist they more often arise from the synovial lining of one of the joint spaces between the carpal bones.

It is essential in such cases to secure a bloodless field with the aid of a constrictor or a blood pressure band inflated to about 240 mm. Only when there is a bloodless field can one follow the stalk of the cyst to its origin and be certain that a complete excision has been performed.

Evacuations through a needle and injection of cauterizing agents have never been successful, in our observation, as a means of eradicating the cyst. The use of a cauterizing electric current seems distinctly contraindicated because of the danger of leaving an open wound through which infection might spread into the surrounding tissues, with unpleasant and serious consequences.

CEREBRAL GUMMA

To the Editor—A man, now 23 years of age, had chancre at 16. At that time he saw a physician who gave him some local application and the chancre disappeared. When he was 20 he started to have convulsions at night at first infrequently and then more frequently until he had them about once a week. I saw him in October 1930 did Wassermann and Kahn tests and found them to be both four plus. I roentgenographed the skull and found definite local erosion of bone in the parietal area suggesting cerebral gumma. I have treated the patient continuously for the past two years giving iodides by mouth mercurial injections and either bismuth arsphenamine sulphate or sulpharsphenamine intramuscularly. Despite the dangers of the latter the convulsions ceased and the bone erosion disappeared but the Wassermann and Kahn tests remained four plus. The eyegrounds and the perimetric field examination gave normal results. Three months ago I gave 0.15 Gm. of neoarsphenamine intravenously. Three days later the patient had a convulsion which was due probably to hemorrhagic encephalitis induced by neoarsphenamine. Since then the convulsions have recurred about twice a month despite the return to bismuth and iodide therapy. Please omit name.

M D New Jersey

ANSWER—Epileptiform convulsions from the pressure of a gumma on a motor area may lead to an erroneous diagnosis of epilepsy. Syphilitic disease of the bones of the cranium may occur as periostitis, osteitis or a gummatous formation. Exostosis and necrosis occurring side by side are characteristic. The diagnosis of cerebral gumma in this case seems well established. The absence of mental symptoms speaks against the diagnosis of dementia paralytica. Treatment has been along established lines. The flare up after a small dose of neoarsphenamine intravenously may be interpreted as a Herxheimer reaction rather than a hemorrhagic encephalitis, which is usually fatal. A course of iodobismutol intramuscularly might be tried. Fever therapy, particularly malaria, or as a substitute intravenous typhoid vaccine or hyperthermia induced by diathermy might also prove efficacious. Large doses of iodides are indicated. Tryparsamide might be tried if other methods fail.

LOSS OF LIBIDO IN WOMAN OF FIFTY SEVEN

To the Editor—A woman aged 57 married has a history of the removal of both tubes one ovary and a portion of the other ovary fifteen years ago. Eight years ago roentgen and radium treatments for a tumor of the uterus presumably a fibroid were given. Since the roentgen and radium treatments she has not menstruated (menstruation was normal before) she has had vasomotor symptoms the finger tips are blue there is shortness of breath on exertion nervousness is present and loss of libido is complete. Examination of the heart lungs blood pressure and urine give normal results. The hemoglobin (Sahli) is 75 per cent. She is somewhat masculine in type her weight is normal. How can I treat this patient to bring back the libido? Would theelin be of value? Please omit name.

M D New York

ANSWER—The chances of a woman of 57 who has only a portion of one ovary left, the function of which has probably been destroyed by the roentgen treatment, of regaining her libido are indeed slight. The only preparation that can have any effect is corpus luteum but in her condition the blood pressure must be carefully watched during its administration. Psychic treatment may also have a good result.

STRAIGHTENING KINKY HAIR

To the Editor—Any information you may give for straightening kinky human hair will be greatly appreciated. Please omit name.

M D Chicago

ANSWER—Curling and kinking of the hair are due to peculiar shape and perhaps physical structure of the hair shafts. They can be overcome temporarily by the use of gluey substances such as acacia and quince seed. The anti-kink mixtures are made of some glue or oil in solution in a solution of alcohol and water which is colored and perfumed. When they are put on the hair the liquid evaporates and leaves a coating of the mucilage on the hair which acts so long as it stays on as a sort of straight-jacket to prevent curling.

DIAGNOSIS OF AND DILT FOR RENAL CALCULUS

To the Editor—Will you please give me a list of foods and medication best suited for a patient with renal calculus? Would you advise a cystoscopic examination if there has been one attack in a patient, aged 30, who has been well since, a period of two months? Please omit name
M D, New York

ANSWER—Formerly many types of diets were recommended to patients with renal calculi. These varied with the chemical composition. For those afflicted with uric acid calculi, the diet suggested was purine free with a reduction in the amount of meat and that of glandular organs, if oxalates, numerous vegetables and fruits were proscribed, as spinach, beans, tomatoes, endives, potatoes, plums, strawberries and cocoa or chocolate. Hence by omitting those foods not allowed it was easy to prescribe the proper diet. However, it is questionable whether dietary restriction plays any part in the amelioration of symptoms or the prevention of recurrence. It is generally accepted that the restriction of alcoholic beverages is advisable.

If it is known by roentgenographic examination that the calculus is in the kidney, nothing will be accomplished by cystoscopy. If it is in the ureter and is causing no discomfort it is best left alone, because more than 90 per cent are ultimately passed spontaneously. If there are evidences of irritation as determined by the symptoms or finding of blood cells in the urine, an intravenous pyelographic examination should be made first. If this does not give satisfactory evidence of ureteral obstruction or narrowing, cystoscopy and ureteral catheterization should be done.

ELECTRICAL REACTION IN X-RAY WORK

To the Editor—For the past two years I have been doing my own x-ray work, consisting of about a dozen fluoroscopic examinations and plates weekly. From the beginning of my work, in spite of the use of standard precautions, of gloves, apron and screen, I have felt a tingling and burning of the skin of the arms and legs, quite mild, but lasting many hours and beginning fifteen or twenty minutes after the use of the machine. When I had occasion to make three or four fluoroscopic examinations in one day I noted an erythema of my face with itching and burning that same night. Is it possible that x-rays can produce so immediate a reaction? If unusual sensitivity does permit such rapid response to x-ray irritation do you think it advisable to discontinue this work absolutely? Please omit name
M D, New York

ANSWER—The reaction may be what is known as an electrical reaction and may be electrostatic in nature. These reactions are seen frequently in roentgen therapy and may consist of all the symptoms mentioned, including swelling of some of the deeper organs, such as the parotid glands, and also erythema.

The reactions usually occur within an hour or two, and sometimes within a half hour or less, after the treatment is given, and can usually be prevented by grounding the material used for protection.

True x-ray reactions never occur in less than five to seven days unless they are exceedingly severe, and even then they do not appear for a day or two. The so-called electrical erythema, or electrical reaction, usually disappears within a day or two, while a true x-ray reaction persists for weeks.

One may be able to prevent this reaction by remaining farther away from all metal substances, or by having all metal substances or conductors suitably grounded. It may even be necessary to ground one's apron and gloves. If so, this must be done in such a manner as to provide against electrical shock.

Idiosyncrasy or sensitiveness to x-rays can be easily determined by testing an area of skin one inch square to different amounts of x-rays, one sixteenth, one eighth, one fourth, and so on, of the erythema dose.

DANGERS OF SPRING PESSARY

To the Editor—A married woman, about 20 years of age, has just come to me because of profuse and prolonged menstruation. I removed a 14 karat gold pessary from the uterus, the kind with a spring and prongs. She tells me she has worn this for a year continuously, without even cleaning it. She says she had it inserted because of severe dysmenorrhea. Are these things indicated for dysmenorrhea? If so, when? Are they not dangerous to wear because of possible pelvic or uterine infection? If they are safe to be worn, how often should they be cleaned? Can a woman wear these indefinitely and later hope to become pregnant and deliver?
R ALLEN ERESTONE, M D, Gibsonburg, Ohio

ANSWER—The gold cervical pessary described in this query is one of the most pernicious types of pessary ever devised. Those who use this kind of pessary employ it either to overcome dysmenorrhea or, more often, to prevent conception. It usually fails in both types of indications. Not only does menstrual pain usually persist while the pessary is in place, but in many instances the pain is actually increased. Also many

women have become pregnant in spite of these pessaries, and in one instance, at least, one of the pessaries was found lodged in an otherwise normal placenta. In most cases in which they are effective in preventing conception they accomplish their purpose only because they have produced an infection such as endocervicitis. Much invalidism has resulted from their use, some of the conditions being cervicitis, menorrhagia, parametritis, pelvic cellulitis, pelvic peritonitis, cervicovesical fistula, and even death. Harold O Jones (*THE JOURNAL*, May 14, 1932, p 1738) reports a case in which death resulted from an infection produced by one of these pessaries. This author says "Within the last few years more than a dozen patients have been seen in the gynecologic service at St Luke's Hospital with severe pelvic peritonitis and cellulitis due to infections originating about these pessaries." Most experienced gynecologists can make similar statements.

These pessaries should never be used for any indication. A physician who employs them may be held responsible for any harm that may result from their use.

HOLDING IRRIGATING FLUID IN ANTERIOR URETHRA

To the Editor—In the reply to an inquiry as to the treatment of gonorrhea (*THE JOURNAL*, November 5, p 1623) it is advised that the solution be held for from five to ten minutes, also that, if the infection is confined to the anterior urethra, this region only should be treated. Now, if a solution is retained for ten or even five minutes will it not run back to the bladder, carrying with it the infection? My experience is that it will do so. Please omit name
M D, California

ANSWER—If the anterior urethra is only partially filled with injected fluid, the tonic contraction of the cut off muscle will prevent any of it passing into the posterior urethra, no matter how long it is retained.

If the anterior urethra is distended forcibly, some of the fluid may pass into the posterior urethra as the result of the force used in injecting it or of the increase of intra-urethral pressure from later digital compression of the urethra.

ULTRAVIOLET RAY NOT CONTRAINDICATED IN DIABETES

To the Editor—I have been informed by one technician and by one layman, who gives courses in physical therapy for manufacturing concerns, that ultraviolet radiation is definitely contraindicated in diabetes mellitus. They did not know why this was so. Will you kindly give me what information you have on this?

CHARLES E GILLESPIE, M D, Seymour, Ind

ANSWER—There has been much contradiction as to the use of ultraviolet radiation in diabetes mellitus. The factors of dosage, erythema production and constitutional reaction have not been controlled. Theory has played a large part. Clinical observations have confirmed the belief that ultraviolet radiation when employed in suberythematous dosage or in carefully regulated mild erythematous dosage is not contraindicated in diabetes mellitus.

POSSIBLE TAPEWORM INFESTATION FROM SALTED DRIED BEEF

To the Editor—Is there any possibility of contracting an infestation of tapeworm by eating uncooked salted dried beef, granting that the meat is infected in the fresh condition?

H L BURKE, M D, Nigeria, West Africa

ANSWER—The cysticerci of beef tapeworm (*Taenia saginata*) retain their vitality for a variable period, depending on temperature and other factors. Four days of freezing at from -8 to -10 C kills the cysts and is thought by German sanitarians to be the most practical method of control. Meat properly pickled for a period of fourteen days is likewise considered safe, if brine is injected, a shorter time (seven days) is considered sufficient.

INSULIN IN MALNUTRITION

To the Editor—In regard to the use of massive doses of insulin in the treatment of tuberculosis and malnutrition, is there any possibility of any future detrimental effects?
CARL REICH, M D, New York

ANSWER—Massive doses of insulin in the treatment of tuberculosis and malnutrition have not been used for a sufficient length of time to warrant any conclusions regarding the possibility of a future detrimental effect. The only basis of comparison would be in diabetic patients in whom comparatively large doses of insulin have been used for years as yet, no one has shown any harm from this.

Council on Medical Education
and Hospitals

COMING EXAMINATIONS

AMERICAN BOARD FOR OPHTHALMIC EXAMINATIONS Milwaukee, June 12 Sec. Dr William H Wilder, 122 S Michigan Blvd. Chicago

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY The written examination will be given in cities of the United States and Canada where there is a Diplomate who may be empowered to conduct the examination April 1 The general oral clinical and pathological examination will be held in Milwaukee, June 13 Sec., Dr Paul Titus, 1015 Highland Bldg., Pittsburgh

AMERICAN BOARD OF OTOLARYNGOLOGY Milwaukee June 12 Sec. Dr W P Wherry, 1500 Medical Arts Bldg., Omaha.

ARIZONA Phoenix April 4-5 Sec., Dr B M Berger, 743 E. McDowell Rd., Phoenix.

CALIFORNIA Reciprocity Los Angeles April 19 Sec Dr Charles B Pinkham 420 State Office Bldg Sacramento

COLORADO Denver, April 4 Sec., Dr Wm Whitridge Williams 422 State Office Bldg Denver

CONNECTICUT Endorsement Hartford, March 28 Sec Dr Thomas P Murdock, 147 W Main St Meriden

HAWAII Honolulu April 10 13 Sec Dr James A. Morgan 48 Young Bldg Honolulu

IDaho Boise April 4 Commissioner of Law Enforcement, Hon Emmutt Pfost Boise.

ILLINOIS Chicago April 11 13 Superintendent of Registration, Mr Paul B Johnson Springfield

MINNESOTA Basic Science Minneapolis April 4-5 Sec. Dr J C McKinley 126 Millard Hall University of Minnesota Minneapolis Regular Minneapolis April 18 20 Sec Dr E J Engherg, 350 St. Peter St St Paul

MONTANA Helena April 4 Sec Dr S A Cooney 7 W 6th Ave., Helena

NATIONAL BOARD OF MEDICAL EXAMINERS Parts I and II The examinations will be held at centers where there are five or more candidates May 8 10 June 26 28 and Sept 13 15 Ex. Sec Mr Everett S Elwood 225 S 15th St Philadelphia.

NEW HAMPSHIRE Concord, March 16-17 Sec Dr Charles Duncan Concord

NEW MEXICO Santa Fe, April 10 Sec., Dr P G Cornish Jr 221 W Central Ave Albuquerque.

RHODE ISLAND Providence April 6-7 Dir Dr L A Round 319 State Office Bldg Providence.

TENNESSEE Memphis March 23 24 Sec Dr A B DeLoach, Medical Arts Bldg Memphis

WISCONSIN Reciprocity Milwaukee April 11 Sec. Dr Robert E. Flynn 401 Main St. La Crosse.

ADDITIONAL HOSPITALS APPROVED

The Council on Medical Education and Hospitals of the American Medical Association has given its approval to the following hospitals since the publication of the last previous list in THE JOURNAL, Nov 12, 1932

Hospitals Approved for Intern Training

St Francis Hospital, Peoria Ill
Ball Memorial Hospital Muncie Ind.
St Joseph's Hospital Lowell Mass
Huron Road Hospital Cleveland
Deaconess Hospital Spokane Wash
Sacred Heart Hospital Spokane Wash

Hospitals Approved for Residencies in Specialties

Institute of Human Relations Psychiatric Clinic New Haven Conn
University Hospitals Minneapolis
University of Nebraska Hospital Omaha
Cumberland Hospital Brooklyn
Charles S Wilson Memorial Hospital Johnson City N Y
Middletown State Homeopathic Hospital Middletown N Y
St John's Hospital Cleveland

Michigan Endorsement Report

Dr Nelson McLaughlin secretary Michigan State Board of Registration in Medicine, reports 20 physicians licensed by endorsement from Sept 4 to Dec 26, 1932 The following colleges were represented

College	LICENSED BY ENDORSEMENT	Year of Grad.	Endorsement of
University of Colorado School of Medicine	(1924)	Colorado	
Howard University College of Medicine	(1931)	W Virginia	
College of Physicians and Surgeons of Chicago	(1906)	Illinois Nebraska	
Loyola University School of Medicine	(1932)	Illinois Iowa	
Northwestern University Medical School	(1931)	Illinois	
Lush Medical College	(1910)	(1927)	Illinois
State University of Iowa College of Med	(1926)	(1930)	Iowa
University of Louisville Medical Department	(1907)	(1930)	Wisconsin
University of Minnesota Medical School	(1923)	(1930)	Minnesota
Craigston University School of Medicine	(1930)	(1932)	Kansas
University of Cincinnati College of Medicine	(1932)	(1930)	Ohio
Jefferson Medical College of Philadelphia	(1930)	(1924)	Penn.
Medical College of the State of South Carolina	(1924)	(1930)	S. Carolina
University of Tennessee	(1929)	(1932)	Tennessee
University of Wisconsin School of Medicine	(1932)	(1932)	Wisconsin

Illinois October Examination

Mr Paul B Johnson, superintendent of registration, Illinois Department of Registration and Education, reports the written and practical examination held in Chicago, Oct 18-20, 1932 The examination covered 10 subjects and included 100 questions An average of 75 per cent was required to pass Seventy-two candidates were examined, 65 of whom passed and 7 failed. The following colleges were represented

College	PASSED	Year Grad.	Per Cent
Chicago Medical School	(1932) 75 76, 76 78	79, 79, 79	83*
Loyola University School of Medicine	(1932) 82*	84	
Northwestern University Medical School	(1931)	83,	
(1932) 79 79 80, 80 80, 82 83 84,* 85	(1931)	77, 79,	
Rush Medical College	(1932) 76* 79 80 81 81 82, 82, 82, 82* 83, 83*		
84 84* 84* 84,* 84* 85 86			
School of Medicine of the Division of Biological Sciences, University of Chicago	(1932) 81	83 84	
University of Illinois College of Medicine	(1932)	75, 76,	
76, 79 80 80* 80* 81 82 82 83* 85, 86, 86, 87*	(1930)	84*	
Harvard University Medical School	(1931)	79	
St Louis University School of Medicine	(1931)	79	
University of Pennsylvania School of Medicine	(1931)	79	
Albert Ludwigs Universität Medizinische Fakultät, Freiburg	(1925)	79	
Regia Università di Firenze degli studi Facoltà di Medicina e Chirurgia	(1926) 75, (1927)	77	
Osteopath†		82	

College	FAILED	Year Grad.	Per Cent
Howard University College of Medicine	(1930)	63	
Chicago Medical School	(1932) 69	71, 71	
College of Medicine and Surgery, Chicago	(1911)	70	
University of Illinois College of Medicine	(1932)	71, 73	

* Licenses withheld pending payment of fee.
† Granted license to practice medicine and surgery under section 12 of the 1923 Illinois Medical Practice Act

Massachusetts July Examination

Dr Stephen Rushmore, secretary, Massachusetts Board of Registration in Medicine, reports the oral and written examination held in Boston, July 12-14, 1932 One hundred and seventy-two candidates were examined, 77 of whom passed and 95 failed. The following colleges were represented

College	PASSED	Year Grad.	Per Cent
Yale University School of Medicine	(1930)	75 5	
Georgetown University School of Medicine	(1932)	77 5	
Howard University College of Medicine	(1926)	77 5	
Rush Medical College	(1931)	81 2	
Johns Hopkins University School of Medicine	(1929)	78 8	
Boston University School of Medicine	(1930)	77,	
(1931) 77 1, 79 3 79 4 (1932) 76 5, 77 2 77 5 78 5, 82 9 86 7			
College of Physicians and Surgeons Boston	(1932)	82 3	
Harvard University Medical School	(1929)	78 6	
(1930) 84 2, (1931) 82 (1932) 75 2 77 5 78 2 79 7, 80 1 80 9, 83 83 7 86 2			
Middlesex College of Medicine and Surgery Boston	(1928)	75 7,	
(1930) 75, 76 8, 77 5 77 5 78 4, 80 2 84 5 (1931) 80 9 82 1			
Tufts College Medical School	(1930)	77,	
(1931) 75 1, 79 5 80 2 80 8, 81 82 82 9 83 1 (1932) 75 75, 75 76 76 5 76 7 76 9 77 77 5, 78 2 78 2 78 3 78 9 79 1 79 2 80 1 80 5 81 2, 83 4			
University of Michigan Medical School	(1931)	77	
Cornell University Medical College	(1907)	75	
Long Island College Hospital	(1906)	75	
Western Reserve University School of Medicine	(1924)	75	
University of Virginia Department of Medicine	(1931)	84 2	
Dalhousie University Faculty of Medicine	(1928)	80 5	
McGill University Faculty of Medicine	(1932)	83 5	
Deutsche Universität Medizinische Fakultät Cze	(1924)	75	
Osteopaths		76 6 76 8 78	

College	FAILED	Year Grad.	Per Cent
Georgetown University School of Medicine	(1930)	66 5	
College of Physicians and Surgeons, Boston	(1932) 64 4 71 2 72 5 74 5	(1931) 67 9 72 2	
Boston University School of Medicine	(1932)	74 1	
Harvard University Medical School	(1930) 68 2	(1932)	73 7
Middlesex College of Medicine and Surgery Boston	(1925) 55 7 66 7 (1926) 55 5 69 8 (1928) 58 7 60 (1929) 51 52 6 62 7 63 7 65 68 3 68 7 69 4 69 7 (1930) 60 1 69 4 72 7 (1931) 67 7 68 4	(1923)	60 5
Tufts College Medical School	(1931) 68 8 (1932) 72 7 73 7 73 8	(1928)	58 2
Kansas City University of Physicians and Surgeons	(1928) 38 9 (1929) 45 6 65 7 68 7 (1930) 56 63 6 7 (1931) 48 5 66 7 72 7 (1932) 62 8 66 5 70 5	(1927)	48
Missouri College of Medicine and Science	(1927)	65 6	
St. Louis College of Physicians and Surgeons	(1923) 49	(1920)	32 6
St. Louis University School of Medicine	(1928)	69 6	
Laval University Faculty of Medicine	(1925) 59 6	(1930)	73 7
Université de Montréal Faculty of Medicine	(1932)	64 2	
Université de Paris Faculté de Médecine	(1928)	69 5	
Osteopaths	33 7 42 3 47 5 50 5 52 54 57 2		
4 59 3 59 4 59 6 60 2 61 61 2 61 7 62 6 62 7 62 9 64 1 65 62 2 65 7 65 8 65 9 66 1 69 6 69 7 70 5 72 72 2 72 6 73 73 3 73 5 73 5 73 7 74 5			

Dr Rushmore also reports 24 physicians licensed by endorsement from May 27 to October 5. The following colleges were represented

College	ENDORSED BY ENDORSEMENT	Year Endorsement
Boston University School of Medicine	(1930), (1931)	N B M Ex
Harvard University Medical School	(1927), (1928), (1929 6), (1930, 4), (1931)	N B M Ex
Tufts College Medical School	(1930 5)	N B M Ex
Albany Medical College	(1931)	N B M Ex
McGill University Faculty of Medicine	(1930), (1931)	N B M Ex

Book Notices

100,000,000 Guinea Pigs Dangers in Everyday Foods, Drugs, and Cosmetics By Arthur Kallet of Consumers Research Inc and F I Schlink of Consumers Research, Inc. Cloth Price, \$2 Pp 312 New York Vanguard Press 1932

This volume has already been highly exploited in advertising and through sensational statements in the press. The book is a compilation of material developed largely through Consumers' Research, Inc. The various chapters concern foods, with especial reference to the dangers from arsenic in the spraying of fruits, cosmetics and tooth pastes, antiseptics, ergot and ether, the advertisements in various periodicals, and a demand for more rigid enforcement of the Food and Drugs Act.

The volume does not seem to have been prepared primarily with the idea of a critical analysis of facts but rather with the idea of telling the story so sensationally that the book would inevitably sell.

There are in the book, exclusive of the index, about 300 pages, and on about 100 of them appears material taken from *THE JOURNAL*, so that if that material were omitted the book would be somewhat of an emaciated corpse. Nevertheless, the authors seem to have swallowed hook line and sinker, the statements made by one Ambruster relative to ergot which have been fully considered in *THE JOURNAL* and which, the authors knew at the time they wrote, demanded more substantiation than Ambruster has been able to provide.

While the authors admit that the advertising carried on in the publications of the American Medical Association is far better than that of any other magazine used as an advertising medium by food and drug manufacturers, they criticize these publications on the ground that the gap between advertising and the exposes made by the Association is not so wide as they could wish. Moreover, their criticisms of the Food and Drugs Administration are on a par with their criticisms of the American Medical Association.

If the authors had themselves ever been confronted with the necessity of passing on hundreds of pages of advertising copy day after day, with the thought in mind of protecting the reader and of giving him that to which he is entitled in the way of both reading material and advertising, instead of being in the position of the paid employees of a research service, who have never been forced to look beyond a test tube, they could not write as they do. If they had had in the development of their material anything resembling adequate biologic and medical advice rather than purely chemical and engineering knowledge, they would not have made as many misstatements and exaggerations as they make. Every physician and biologist knows that there is a difference between *in vitro* and *in vivo* action.

The misconceptions of the authors relative to antiseptics are obvious to any medically experienced reader. Every one knows that antiseptic preparations are to some extent overrated by manufacturing firms. For this reason the Council on Pharmacy and Chemistry has accepted but few of the many antiseptic preparations now offered to the public. However, Kallet and Schlink attack even these few. The basis of their attack is misconception on their part that tests with cultures in liquid or solid mediums tell the degree to which an antiseptic will be effective when applied to an infected wound. This is unfortunately the chemist's attitude in a field in which chemistry does not tell the whole story. Actually, present methods of testing the value of antiseptics as applied to tissue are inadequate.

Their book may serve a useful purpose in awakening some people to a danger that most people now know exists. In the long run it is likely to do more harm by its exaggerations than to accomplish good by the facts which, as has been said, are largely taken from other people's investigations and publications.

The government has in the Food and Drug Administration, the fraud order powers of the Post Office Department and the work of the Federal Trade Commission certain agencies capable of accomplishing good for the public. Like other governmental functions, they are hampered by political influence, by hopelessly inadequate budgetary allowances and by a vast mass of legal restrictions on statute books and even in the constitution of the United States. One is inclined to quote to Messrs Kallet and Schlink that famous phrase which appeared in a western dance hall, "Don't shoot the piano player. He's doing the best he can."

Perhaps it would be well for this review to adopt somewhat the same point of view in relationship to the criticisms of the book of Kallet and Schlink. No doubt, their point that quacks can practice with prospect of little punishment beyond a small fine and the surrender of the material seized is a well established one. Perhaps they find it necessary to overemphasize in a period when every one is shouting in order to get any attention at all. But the fact remains that they have damaged the good as much as they have damaged the evil, and this is the most difficult distinction that any destructive critic or iconoclast has to make.

It would be largely a work of supererogation to attempt to point out each of the individual exaggerations, misstatements and misunderstandings that appear in this book. It is to be hoped that in any future efforts of this character the authors will seek suitable medical and biologic counsel in the fields in which apparently their knowledge is relatively slight.

Nouveau traité de psychologie Par Georges Dumas professeur à la Sorbonne Tome II. Les fondements de la vie mentale. Avec la collaboration de B. Bourdon professeur honoraire à la Faculté des lettres de Rennes, J. Larguier des Bancels, professeur à la Faculté des lettres de Lausanne, A. Mayer professeur au Collège de France, I. Meyerson directeur adjoint à l'École des Hautes Études et H. Piéron professeur au Collège de France. Cloth Price 100 francs Pp 612 with 122 illustrations Paris Librairie Félix Alcan 1932

The second volume of this well known French handbook is concerned largely with physiologic problems on the borderline of psychology. It begins with a general discussion of excitation and movement. These fundamental properties of cytoplasm are traced through their increasing complexities, culminating in the conditioned reflexes of the Pavlov school, which are discussed at length. The chapter ends with a section on muscular fatigue. The second chapter deals with the effect of psychic excitation on the secretory organs, in which the work of Pavlov is again dealt with, as are also the studies on secretion of epinephrine by Cannon and his pupils. There follows a detailed study of the physiology of sensation and then a long section on affective states (the disagreeable and the agreeable pain and pleasure, emotional shock, desires). In the discussion of emotional shock, the work of Cannon and his associates is extensively quoted. In the chapter on instinctive tendencies, little use is made of the results of animal experimentation. The volume closes with a description of images. The author concludes that "images are a kind of thought, they are a figuration of thought, they are signs, they are another formulation at the side of the verbal formulation." While the discussions are scholarly and well documented, the printing is marred by the presence of numerous typographic errors.

Behaviour Aspects of Child Conduct By Esther Loring Richards B.A. M.D. D.Sc. Associate Professor of Psychiatry Johns Hopkins School of Medicine With a foreword by Adolf Meyer Cloth Price \$2.50 Pp 299 New York Macmillan Company 1932

More and more, mental health of children is becoming the active concern of parents, teachers and physicians. Many parents believe that merely having a child gives them complete understanding, but nothing could be further from the truth. Many parents consider themselves able to give expert opinions concerning behavior, while in reality they have little, if any, understanding of the matter. Even those who have made a careful study of psychology of childhood cannot be certain as to the best course to pursue in the solution of childhood

behavior problems. There are many books on child behavior. In this book is a discussion of the problem illustrated by many case reports. There is a discussion of the role of behavior in the field of individual health, followed by chapters on the methods of inquiry into the failure of adjustment, on the relation of physical handicaps to child behavior, and on the importance of habit training in early childhood. There are two chapters on the effects of constitutional handicaps, a chapter on the fears of children, one on the management of adolescence, and one on the delinquent child. The material in the book appears to be sound, but the style of presentation is not such as to make the book easily read. To the average parent the book will not be found of any great value, but for the physician and teacher it should prove helpful.

L'état réactionnel. Évolution du tissu lymphoïde en réaction. Par A. Guleysse Pellissier, professeur agrégé à la Faculté de médecine. Paper. Price 20 francs. Pp 224 with 54 illustrations. Paris: Librairie Felix Alcan 1932.

The author has studied and described the comparative histology, evolution and function of the lymphoid tissue. He defines the state of reaction (*l'état réactionnel*) as the accumulation of lymphocytes in tissues that show no other abnormality, he considers it a stage intermediate between the normal and the pathologic. He found such accumulations of lymphocytes in animals living in insanitary surroundings. He was also able to induce such lymphocytic reactions experimentally in rats by keeping them under unhygienic conditions or by exposing them to the irritating fumes of formaldehyde or of turpentine. Histologically the reactional state is characterized by a hyperplasia of the lymphoid tissues with no other signs of inflammation. The author reviews the anatomy of the lymphoid tissue in the pharynx, thymus, intestine, appendix, lymph nodes and spleen. This part of the monograph is needlessly prolonged and emphasized, since the facts are presented in elementary works on histology. After a discussion of the evolution of the lymphoid tissue in fish, amphibians and mammals, he calls attention to the variability of these structures in individuals of the same species and notes the marked sensitivity to diverse irritations. He finds that the development of the lymphoid tissue parallels that of the individual. It appears after birth, reaches its maximum development in youth, remains stationary in the adult and tends to disappear in old age. In discussing the functions of the lymphoid tissues, the author doubts the purely defensive action of these tissues and suggests that lymphoid hyperplasia may be an injurious reaction at times. He states that the scattered lymphoid tissue may act frequently as a tissue parasite and is particularly susceptible to infection. This monograph is an interesting study on the evolution and function of the lymphoid tissue. There are numerous illustrations and an extensive bibliography, which add to the clarity and usefulness of the contribution.

The Mechanism of Creative Evolution. By C. C. Hurst, Doctor of Philosophy of the University of Cambridge. Cloth. Price \$6. Pp 365 with 200 illustrations. New York: Macmillan Company. Cambridge: Eng. University Press 1932.

The author, a prominent English geneticist who has contributed largely to the knowledge of heredity in poultry, rabbits, roses and man, has given an exceptionally clear account of the detailed mechanisms of heredity and variation. No other book gives so much of the actual evidences on which the chromosomal and gene theories of evolution rest. The book is well illustrated, many of the pictures occupying a full page in fact nearly half of the book consists of illustrations.

While the book presents orthodox modern genetics in language as plain and simple as may be, the author disclaims a materialistic view. Evolution, he says, is not a deterministic machine and creative evolution as we shall see is far from being mechanistic—on the contrary it is peculiarly indeterminate throughout all its phases. The book develops along familiar lines throughout most of its length beginning with an exceptionally clear and intelligible account of mendelian heredity and proceeding to a thorough exposition of the chromosomal mechanisms of heredity, an equally luminous account of chromosomal changes and the bearing of these on the origin of new species and an adequate treatment of gene mutations and their probable role in evolution. So far the plan is familiar. From here on the author branches out into more

speculative fields. In a chapter on the smallest living organisms he proceeds to discuss the nature of "filter-passers" and bacteriophages. From the largest living bacteria measuring 750 micromillimeters in diameter down to the smallest half-alive bacteriophages of 10 micromillimeters or less there is, the author says, a continuous series of sizes. He is inclined to believe that the bacteriophage units are equivalent to single specific genes, that the viruses are groups of specific genes more or less in a free state, and that the simplest living bacteria are more complex groups of genes of two or more kinds enclosed in a cell membrane. According to this view the origin and early evolution of life consists of the spontaneous appearance of numerous free specific genes, which gradually form aggregates and subsequently organize the nuclear and cytoplasmic parts of cells. All further evolution is the direct consequence of more and more complex and specialized gene arrangements. Gene changes are random, chromosomal transmutations are random, the mechanism of mendelian heredity is random, and natural selection is locally random according to the particular conditions of environment. The fact that the mechanism of evolution is the result of the interaction of four random variables points to the conclusion that the whole process is indeterminate and unpredictable. While the author believes that evolution will go on in the future to produce types far in advance of present man, he considers that the particular lines of progress are absolutely unpredictable, except that the next advance must be based on man. He concludes that there are no limits to the advances toward higher powers that may take place in the next thousand million years.

This is a book that is sure to be widely read.

The Haemolytic Streptococci. Their Grouping by Agglutination. By Frederlek W. Andrewes and Ethel M. Christie. Medical Research Council Special Report Series No 169. Paper. Price 1s 3d. Pp 73 with 24 illustrations. London: His Majesty's Stationery Office 1932.

There has long been need for a thorough investigation of the agglutination of hemolytic streptococci to bring some order into one of the most confused fields of bacteriologic research. Considerable progress has been made in knowledge of streptococci and in technic for agglutination since the first articles on agglutination of streptococci were published, also there has been no unanimity of opinion among the more recent investigators as to the possibility of identifying the various pathogenic streptococci by means of group agglutination. This publication deserves the serious attention of all interested in the field, first, because in their investigations the authors have developed and utilized a highly specialized technic necessary to elimination of avoidable errors, and, secondly, because their work is not limited to the streptococci found in one disease but covers the field of hemolytic streptococcus infection in man, including scarlet fever, erysipelas, puerperal sepsis and surgical infections. In regard to scarlet fever, they conclude that there is no one serologic type which can be credited with the causation of this disease but that the property which determines the power to cause scarlet fever is rather the intensity of toxin production than any power discoverable by agglutination. Nor were these authors, despite the refinements of their methods and the painstaking quality of their work, able to identify by means of agglutination specific types of streptococci concerned in the other diseases mentioned.

Psychopathology of Forced Movements and the Oculogyric Crises of Lethargic Encephalitis. By Smith Ely Eliot, M.D., Ph.D. Nervous and Mental Disease Monograph Series No 55. Boards. Price \$4. Pp 219 with illustrations. New York: Nervous & Mental Disease Publishing Company 1932.

The author has reviewed the literature in as great detail as possible abstracting numerous case reports from the published work of previous authors. The method that he uses fails in that he has not digested the various reports, so that the reader does not receive a proper evaluation of the significance of any one. He attempts to use psychoanalytic methods in the study of forced movements, using the same methods that have been applied to respiratory difficulties in epidemic encephalitis. Just what can be obtained from psychoanalytic studies of organic diseases of the nervous system depends to a large extent on the individual point of view. Certainly Eliot's ideas are of great interest but his interpretation is still largely theoretical and requires more proof than he has advanced.

Medicolegal

Admissibility of Hospital Records

(Dunn v. Buschmann (Wash.), 13 P (2d) 69)

The plaintiff's wife was delivered of child by the defendant-physician in a hospital, November 18. Soon after being taken home on December 2 she had a uterine hemorrhage, which continued with increasing profusion until her death. The defendant did not visit his patient from the day she left the hospital (December 2) until December 5, when he ordered her returned to the hospital. She died the following day. The plaintiff, as administrator of his deceased wife's estate, brought suit for malpractice against the physician, claiming that the defendant failed to visit her in response to several telephone requests advising him of her condition and that had he visited her then and acted timely she would not have died. The defendant, on the other hand, claimed that he had not been informed of her condition, that during the three day period that she was at home he had no cause to know or suspect her condition and that it was only on visiting her on December 5 that he discovered her condition. Over the plaintiff's objection, certain portions of the hospital record of the case containing entries made and signed by the defendant, December 5, were admitted in evidence. There was a judgment in favor of the defendant, and the plaintiff appealed to the Supreme Court of Washington.

This court, said the Supreme Court, held in *Toole v. Franklin Ins. Co.*, 158 Wash. 696, 291 P. 1101, that the records of a hospital relating to injuries or sickness of a patient, made by attending physicians or nurses, was inadmissible as hearsay evidence. The hospital record admitted in this case seems objectionable for similar reasons. The first statement of the matter objected to is "Past three days (plaintiff's wife) has had profuse hemorrhages." This manifestly was unknown to the defendant except as he learned it from hearsay when he called on his patient, because he had not seen her during the prior three-day period. The second statement that "this continued for three days without notification of doctor" is clearly a self-serving statement made by the defendant and was intended to negative the defendant's fault in not taking notice of his patient's critical condition prior to his visit. The third statement is that this want of notice was "due to fact that patient was cared for by many friends who attended her for short periods, and none of them were aware of amount of blood lost." This also was unknown to the defendant except as he learned it from hearsay at the time he called on his patient. It is even worse than mere hearsay. It is a mere conclusion based wholly on hearsay. It is plain that the statements contained in the record admitted are hearsay and self-serving and were erroneously admitted in evidence.

The defendant contended that the admission in evidence of the hospital record was without prejudice to the plaintiff, because the facts stated in the record were testified to by the defendant or by other witnesses. Manifestly, said the Supreme Court, this record was introduced in behalf of the defendant to corroborate and support his own testimony touching his alleged neglect of his patient during the three day period. It is well settled, however, that evidence of what a witness has said out of court cannot be received to fortify his testimony in court. The judgment in favor of the defendant was reversed and a new trial ordered.

Hospitals Liability for Hot Water Bottle Burn—The plaintiff contracted pneumonia and was taken to the defendant hospital. While he was unconscious a hot water bottle, wrapped in a towel, was placed in his bed near his feet. The towel became dislodged and the plaintiff suffered a burn on his left heel. He sued the hospital and its superintendent for damages. There was a judgment for the plaintiff, and the defendants appealed to the Supreme Court of Oklahoma. The plaintiff, said the Supreme Court, does not claim that the defendants should not have used the hot water bottle but contends that in using it the defendants failed to exercise proper care and due caution to see that the bottle did not burn him. The defendants owed the plaintiff the duty of protection against their negligent acts. Although the use of a hot water bottle is proper in the treatment of pneumonia,

if it was placed at the plaintiff's feet it should not have been so hot as to cause a burn. There was evidence indicating that it was negligence under the circumstances for the defendant hospital after placing the hot water bottle in the plaintiff's bed not to watch and guard so as to avoid hurting him. The determination of this fact was a question for the jury and the jury was justified in finding that the hospital had been negligent. The jury, however, was not justified in finding that the superintendent had been negligent. There was no evidence that the superintendent had negligently employed incompetent nurses for the hospital. Accordingly, the judgment in favor of the plaintiff was affirmed as to the hospital but reversed as to the superintendent.—*Duke Sanitarium v. Hearn (Okla.)*, 13 P (2d) 183.

Malpractice Right of Physician to Testify Against Chiropractor Using Diathermy Machine—A chiropractor was sued for damages for alleged negligence in administering a treatment on a diathermy machine. Over the defendant's objection, a nonsectarian physician was permitted by the trial court to give his opinion as to whether or not the treatment had been proper. The malpractice of a chiropractor, the defendant contended, cannot be established by the testimony of a nonsectarian physician. But, said the district court of appeal, second district, division 1, California, the use of diathermy is not peculiar to chiropractic practice but is taught and included in the practice of the various schools of medicine. The principal books and journals which discuss diathermy and the use of diathermy machines are written by medical authorities other than those of the chiropractic school. It is clear that the witness was competent on the subject, notwithstanding the fact that he was not a chiropractor.—*Dalton v. Los Angeles College of Chiropractic et al (Calif.)*, 13 P (2d) 546.

Society Proceedings

COMING MEETINGS

- Alabama, Medical Association of the State of, Montgomery, April 18 21 Dr D L Cannon, 519 Dexter Avenue, Montgomery, Secretary.
- American Association for Thoracic Surgery, Washington, D C, May 1 3 Dr Duff S Allen, 3720 Washington Boulevard, St. Louis, Secretary.
- American Association of Anatomists Cincinnati, April 13 15 Dr George W Corner University of Rochester School of Medicine, Rochester, N Y, Secretary.
- American Association of Pathologists and Bacteriologists Washington, D C, May 2 3 Dr Howard T Karsner, 2085 Adelbert Road, Cleveland, Secretary.
- American Physiological Society, Cincinnati, April 10 12 Dr Frank C Mann, Mayo Institute, Rochester Minn Secretary.
- American Society for Experimental Pathology Cincinnati, April 10 12 Dr C Phillip Miller, Jr, University of Chicago Department of Medicine, Chicago, Secretary.
- American Society for Pharmacology and Experimental Therapeutics, Cincinnati, April 10 Dr V E Henderson, Medical Building, University of Toronto, Toronto Canada, Secretary.
- American Society of Biological Chemistry Cincinnati, April 10 12 Dr Howard B Lewis, University of Michigan Medical School, Ann Arbor, Mich, Secretary.
- American Surgical Association, Washington D C, May 1 3 Dr Vernon C David 59 East Madison Street, Chicago, Secretary.
- Arizona State Medical Association Tucson April 20 22 Dr D F Harbridge, 822 Professional Building, Phoenix Secretary.
- Arkansas Medical Society, Hot Springs May 2-4 Dr William R Bathurst, 814 Boyle Building Little Rock, Secretary.
- California Medical Association Del Monte, April 24 27 Dr Emma W Pope, 450 Sutter Street, San Francisco, Secretary.
- District of Columbia Medical Society of the Washington May 3 Dr C B Conklin, 1718 M Street N W, Washington, Secretary.
- Federation of American Societies for Experimental Biology, Cincinnati, April 10 12 Dr C Phillip Miller, Jr, University of Chicago Department of Medicine, Chicago, Secretary.
- Harvey Cushing Society, Louisville Ky, April 13 14 Dr Tracy J Putnam, 818 Harrison Avenue, Boston, Secretary.
- Kansas Medical Society, Lawrence, May 2 4 Dr J F Hassig, 804 Huron Building Kansas City Secretary.
- Louisiana State Medical Society, Lake Charles, April 25 27 Dr P T Talbot, 1430 Tulane Avenue New Orleans, Secretary.
- Maryland, Medical and Chirurgical Faculty of, Baltimore, April 25 26 Dr Walter Dent Wise, 1211 Cathedral Street, Baltimore, Secretary.
- Missouri State Medical Association, Kansas City May 1-4 Dr E J Goodwin, 634 North Grand Boulevard, St. Louis, Secretary.
- New York Medical Society of the State of, New York, April 3 5 Dr Daniel S Dougherty, 2 East 103d Street, New York, Secretary.
- North Carolina Medical Society of the State of, Raleigh, April 17 19 Dr L B McBrayer, Southern Pines, Secretary.
- Ohio State Medical Association Akron, May 2 3 Mr Don K Martin, 131 East State Street Columbus Executive Secretary.
- South Carolina Medical Association, Spartanburg, April 18 19 Dr E A Hines, Seneca, Secretary.
- Tennessee State Medical Association Nashville, April 11 13 Dr H H Shoulders, 706 Church Street, Nashville Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Issues of periodicals are kept on file for a period of five years only. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below

Alabama Medical Association Journal, Montgomery

2: 173 216 (Nov.) 1932

- *Bacteriophage in Treatment of Osteomyelitis and Other Wounds. F H Albee, New York.—p 173
- Progress in Treatment of Tuberculosis L J Moorman, Oklahoma City.—p 178
- Diagnosis and Office Management of Commonly Neglected Gynecologic Conditions. T B Sellers New Orleans.—p 183
- Early Pioneers in Ophthalmology in America. C A. Thigpen, Montgomery.—p 188
- Postpartum Hemorrhage Caused by Uterine Relaxation. F M T Tankersley, Montgomery.—p 194
- Allergy in Children, with Particular Reference to Food Idiosyncrasy Report of Cases J H Baumhauer Mobile.—p 195

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- Development of the American Medical Association Some of Its Possibilities. E H Cary Dallas Texas.—p 217
- Avulsion of Phrenic Nerve in Surgical Treatment of Pulmonary Tuberculosis N R. Clarke, Jr. Mobile.—p 223
- Our State Association. J Watson, Anniston.—p 228
- Treatment of Epidermoid Carcinoma with Roentgen Ray L E. Sorrell Birmingham.—p 230
- Etiology and Treatment of Migraine Case. G O Segrest, Mobile.—p 232
- Hernia Anomalous Case. A C. Jackson Jasper.—p 235
- Diabetes Insipidus Case C A Grote Huntsville.—p 237

Bacteriophage in Treatment of Osteomyelitis—For the treatment of osteomyelitis, both acute and chronic, Albee uses the following method. After completing the usual sequestrectomy and saucerization, he takes a culture. If he has already found a specific bacteriophage from a culture previously taken from an existing sinus, he pours two thirds of a test tube of this phage into and over the wound, so that the whole surface is bathed. He then packs the wound with a mixture of paraffin and petrolatum, usually 75 per cent paraffin to 25 per cent petrolatum. The paraffin and petrolatum are heated and poured in as a liquid or forced in by pressure through a large syringe. In most cases the syringe is the method of choice in order to insure penetration of the mixture to the innermost recesses of the wound. He inserts one end of a rubber catheter through the paraffin-petrolatum wound tampon to the bottom of the bone cavity. He allows the other end to project through the dressings and cast with a sterile gauze or cotton dressing over the end. If the laboratory examination of the culture reveals that it is possible to develop a bacteriophage specific for the organism presented, he injects 10 cc. of this phage through the rubber catheter once or twice a week. Should the bacteriophage appear spontaneously in the wound, injection of the laboratory bred phage is still of advantage in that it accentuates the action of the native phage and may be a more specific one. In large wounds several catheters may be inserted, some of which are multifenestrated. As the catheter is firmly embedded in the paraffin petrolatum tampon, the injected phage fluid cannot flow backward between the catheter and the tampon. It must therefore make its way inward between the tampon and the wound granulations and thus, by reason of its own bulk spread widely. Since the phage is by nature a multiplying organism it will thus automatically spread over the wound surface. At the end of eight weeks the cast is removed and the wound dressed great care being taken not to traumatize the granulating surfaces. If the wound is not entirely healed when the cast is removed he again bathes it with a test tube of the prepared specific phage fluid and inserts a catheter or catheters to the depths of the wound. He uses a paraffin and petrolatum tampon as before and applies a cast for a period of eight weeks. He also takes a culture at this time to determine whether the bacterial flora of the wound has changed and whether a more specific race of bacteriophage can

be obtained. Periodic injections through the catheter should be given as before. The author has recently completed a statistical study of 100 consecutive cases treated by his method, which showed that the average healing time for a case of osteomyelitis so treated is about six months.

American Journal of Physiology, Baltimore

102: 267 526 (Nov. 1) 1932

- Vital Capacity of Siamese. K. Suvarnakich, Bangkok Siam.—p 267
- Effect of Confinement on Growth of Chicken Combs and Testes G D Buckner, W M Insko Jr., and J H Martin, Lexington, Ky.—p 271
- *Factors Influencing Passage of Liquids from Stomach into Intestine. J F Stewart and W N Boldyreff, Battle Creek, Mich.—p 276
- Nutritive Properties of Crop-Milk of Pigeons Lucille L Reed, L B Mendel and H B Vickery with assistance of P Carlisle, New Haven Conn.—p 285
- *Emptying of Gallbladder A S Marrazzi Boston.—p 293
- *Effect of Carbon Dioxide Hyperventilation and Anoxemia on Knee Jerk. C E King, W E Garrey and W R Bryan, Nashville, Tenn.—p 305
- *Nutritive Value and Efficiency of Mineralized Milk. A R Kemmerer, C A Elvehjem, E B Hart and J M Fargo Madison Wis.—p 319
- Nature of Foodstuffs Oxidized to Provide Energy in Muscular Exercise IV Use of Protein as Fuel in Exercise. A. Canzanelli and D Rapport Boston.—p 325
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- Mechanism of Parathyroid Hormone Action D L Thomson and L I Pugsley Montreal Canada.—p 350
- Effects of Gonadal Stimulating Hormone of Anterior Pituitary on Voluntary Activity, Age of Maturity and Size of Litter in Immature Female Albino Rats Ruth M Kraft Columbus Ohio.—p 355
- *Studies on Subcutaneous Absorption H E Himwich, G S Goldman and M Y Krosnick, New Haven Conn.—p 365
- Study of Cushny's Theory of Sulphate Diuresis J H Cherry, G S Eadie and W P Frazer Durham N C.—p 370
- Experimental Interference with Rabbit Embryos in Early Stages of Their Development Jessie L King, M Collins and H E Peterson Baltimore.—p 375
- Stimulation of Muscle Respiration by Carbon Monoxide W O Fenn and Doris M Cobb Rochester, N Y.—p 379
- Burning of Carbon Monoxide by Heart and Skeletal Muscle. W O Fenn and Doris M Cobb Rochester N Y.—p 393
- Posterior Pituitary Hormone in Metabolism III Effect of Pitressin and Pituitrin on Lipoid Distribution. M Louisa Long Elsie Hill and F Bischoff Santa Barbara, Calif.—p 402
- Formation of Glycogen Following Pancreatectomy S G Major and F C Mann Rochester, Minn.—p 409
- Antirachitic Efficiency of New Orleans Sunshine. H S Mayerson and H Laurens New Orleans.—p 422
- Alterations in Blood Lactic Acid as Result of Exposure to High Oxygen Pressure. J W Bean and J Haldi, Ann Arbor, Mich.—p 439
- Studies on Kinetics of Lactate Formation in Muscle Under Influence of Iodoacetic Acid. P W Smith and M B Visscher Chicago.—p 448
- Respiratory Metabolism of Pancreatic Diabetes in Cats G C Ring and C W Hampel Boston.—p 460
- Place of Red Nucleus in Postural Complex. W R Ingram and S W Ranson Chicago.—p 466
- Technic for Obtaining and Recording Isometric Contractions of Mammary Skeletal Muscles in Situ E G Martin J Field II and V E Hall Palo Alto Calif.—p 476
- Activity Metabolism of Mammary Skeletal Muscle in Situ E. G. Martin J Field II and V E Hall Palo Alto Calif.—p 481
- Effect on Ovulation and Pregnancy of Blocking Pituitary Circulation in Rabbit W E White, New York.—p 505
- *Studies in Anaphylaxis I. Appearance of Physiologically Active Substance During Anaphylactic Shock. C A Dragstedt and E. Gehauer Fuelnegg Chicago.—p 512
- Id II Nature of Physiologically Active Substance Appearing During Anaphylactic Shock E Gehauer Fuelnegg and C A. Dragstedt Chicago.—p 520

Passage of Liquids from Stomach into Intestine—Stewart and Boldyreff describe experiments in which they demonstrated that gastritis and duodenitis inhibit gastric evacuation markedly. Even tap water is delayed two or three times the normal limits. No other liquid leaves the stomach more rapidly than water. Strong alkalis inhibit the emptying of the stomach as much as do acids. Weak alkalis leave the stomach with the same rapidity as weak acids. Gastric emptying is prolonged by alcohol, mustard pepper and so on, some bitter salts and peptone. Temperatures from 2 to 50 C have little effect on the emptying time of the stomach. Duodenal regurgitation is the most important factor in the neutralization of gastric acidity.

Evacuation of Gallbladder—Marrazzi studied the extent of emptying of the gallbladder by a method of quantitatively estimating the gallbladder bile evacuated in normal, fat-fed cats not operated on. Gallbladder emptying was studied in

unanesthetized trained dogs by a new method of visualization (abdominal endoscopy). The mechanism of emptying was further studied by means of drugs and substances known to affect smooth muscle directly or through its nerve supply, and by mechanical and electrical stimulation. Direct observation of the viscus during a period when it was emptying failed to show any muscular contraction. An emptying of the gallbladder was not produced or influenced by drugs that have a definite effect on smooth muscle activity, nor by mechanical or electrical stimuli. The conclusion seems warranted, therefore, that muscle contraction in any way comparable to that occurring in other hollow organs plays little or no part in this emptying.

Relations of Respiratory Conditions to Knee Jerk—King and his associates state that, in the dog with the spinal cord intact, the initial depression of the knee jerk which results from an increase of the carbon dioxide tension of the blood is not due to a direct depression of the spinal reflex centers but to an inhibitory effect from higher centers, due in part to their direct excitation by the carbon dioxide and in part to reflex excitation. The effect of hyperventilation on the knee jerk is that of a mild augmentation, but in animals with the cord intact, inhibitory influences from higher centers may dominate and lead to an actual diminution. The actual excursion of the leg may also be diminished because of the development of a state of rigidity and increased extensor tone. There is no evidence that the effects of hyperventilation are due to tissue anoxia. In the early stages of anoxia there is evidence of a short period of increased excitability of the lower spinal centers. The effects of a severe and prolonged anoxia are always depressant. The lower spinal centers are qualitatively affected by an increase in the carbon dioxide tension in the blood and by anoxia as is the respiratory center, but quantitatively they are much less responsive. The effects of acidosis, alkalosis and anoxia, within physiologic limits, account to but a small degree for the variability in spinal reflex responses and are overshadowed largely by other inhibitory and augmentatory factors.

Nutritive Value of Mineralized Milk—Kemmerer and his associates found that rats reared from weaning on whole cow's milk mineralized with iron, copper and manganese grew from 60 to 200 Gm in thirty-six days. The average daily gain of 3.9 Gm was similar to the gain made by rats on an ordinary ration. To produce a gain of 1 Gm in weight, 2.25 Gm of milk solids was required. Pigs reared on mineralized milk (plus cod liver oil) made an average daily gain of 1.26 pounds over a period of sixteen weeks. The rate of gain was practically identical with that made by pigs on a standard dry ration. Only 1.97 pounds of milk solids was necessary to produce a 1 pound gain in weight, while 3.53 pounds of the dry ration was needed to produce the same gain. The nutritive value and efficiency of whole cow's milk has thus been demonstrated by direct feeding after the deficiencies in the milk were corrected by the addition of inorganic supplements.

Subcutaneous Absorption—In order to determine the rate of absorption of dihydroxyacetone, dextrose, fructose and galactose, Himwich and his associates performed ninety-two experiments in which 50 per cent solutions of these substances were injected subcutaneously. In addition, a 2.5 per cent solution of dextrose was used in sixteen experiments and a 5 per cent solution in thirty-six. At the end of forty-five minutes, the proportion absorbed for each of the 50 per cent solutions was as follows: dihydroxyacetone, 59.3 per cent, dextrose, 48 per cent, galactose, 39.2 per cent, and fructose, 37 per cent. After one hour, 62 per cent of the 2.5 per cent solution of dextrose and 53.9 per cent of the 5 per cent solution had been absorbed. The results indicate, first, different rates of absorption for these substances, secondly, an apparently constant rate of absorption for each substance from a concentrated solution (50 per cent), and, thirdly, a diminishing rate of absorption from a dilute solution (5 per cent and 2.5 per cent).

Active Substance in Anaphylactic Shock—Dragstedt and Gebauer-Fuelnegg report that in the majority of instances of severe or fatal anaphylactic shock in the dog there appears a substance or substances having the property of stimulating smooth muscle (guinea-pig intestine) in the supradiaphragmatic inferior vena cava blood, and in the thoracic duct lymph. This substance apparently disappears or rapidly diminishes as the blood circulates, since it can but rarely be demonstrated in the femoral vein blood.

Am J Roentgenol & Rad. Therapy, Springfield, Ill

28 579 698 (Nov) 1932

- Roentgen Ray Findings and Clinical Background Caldwell Lecture, 1932 A W Crane, Kalamazoo, Mich—p 579
Calcification of Suprarenal Glands in Addison's Disease Roentgenographic Study J D Camp, Rochester, Minn, R G Ball, Manhattan, Kan, and C H Greene, New York—p 594
Leprosy Roentgenologic Survey J R Murdock and H J Hutter, Honolulu, T H—p 598
Occurrence of Multiple Bony Lesions Suggesting Myeloma in Skeleton of Pre-Columbian Indian W A Ritchie and S L Warren, Rochester, N Y—p 622
Umbilic in Urography J S Ritter and I N Rattner, New York—p 629
Diaphragmatic Hernia in Child Report of Case J P Nalbant, Northville, Mich—p 634
Variations of Bones of Wrist F B Bogart, Chattanooga, Tenn—p 638
Decalcification of Sella Turcica Due to Malignancy and Recalcification of Sella After Roentgen Therapy Case Report G von Poswik, Scranton, Pa—p 647
Time Intensity Factor in Irradiation G T Pack and Edith H Quimby, New York—p 650
Measurement of Radiation Field About Sources of Radium in Roentgens and Photographically Lillian E Jacobson, New York—p 668

American Journal of Tropical Medicine, Baltimore

12 407 521 (Nov) 1932

- Metabolism and Treatment of Blackwater Fever A M Wakeman, Clare A Morrell, Anna J Eisenman, D L Sprunt and J P Peters New Haven, Conn—p 407
Further Studies on Experimental Leprosy and Cultivation of Mycobacterium Leprae M H Soule, Ann Arbor, Mich, and E B McKinley, Washington, D C—p 441
Specific Agglutination with Noguchi's Technic as Method of Distinction of Flagellates of Genus Leishmania Ross, 1903 F da Fonseca, São Paulo, Brazil—p 453
*Amoebiasis in Panama and California, with Especial Reference to Incidence and Treatment H H Anderson, San Francisco—p 459
*Influence of Race in Malarial Splenomegaly in Panama P S Carley, Kingston, Jamaica, B W I—p 467
*Hydroquinidine in Malaria H G Bevil, Silsbee, Texas—p 473
Intestinal Parasitism Diagnosis and Treatment D de Rivas, Philadelphia—p 477
Parallel Incidence of Filaria Bancrofti and β Hemolytic Streptococcus in Certain Tropical Countries A W Grace, Feiga Berman Grace and S Warren, Boston—p 493
Bactericidal Action of Di-Hydranol in Human Cholera Carriers L Lerva, Manila, P I—p 509

Amoebiasis in Panama and California—Anderson points out that a relatively high incidence of amoebiasis (*Endamoeba histolytica*) presumably exists in Guatemala, Costa Rica and the interior of Panama. In the Hospital Santo Tomas in Panama City, however, only 13.9 per cent of a selected group of patients (from the men's medical, women's medical and obstetric wards) were found to harbor *E. histolytica*. In recent California surveys in which comparable laboratory methods were used (wet fixed iron hemotoxylin stained smears examined) there has been reported an incidence of from 9.8 to 16 per cent. In 88 of the 101 Panama cases of amoebiasis found on 1,834 examinations the patients were treated with carbaminophenyl-arsonic acid containing 28.8 per cent of arsenic given orally in an average dosage of 5 Gm for ten days. This amebicide was effective without adjuvant in clearing all but one of the thirty-seven patients that could be followed during the month of therapy. No evidence of arsenic toxicity was noted when total doses of 300 mg per kilogram were given orally.

Influence of Race in Malarial Splenomegaly—Carley's report is based on the study of a group of 1,091 Panamanian children (598 Negroes and 493 mestizos) showing evidence of malaria by parasites in the peripheral blood, by enlarged spleen, or by both. Splenomegaly, as a sign of malaria, is more constant in the mestizo than in the Negro. If, in this series, dependence had been placed on splenic enlargement alone, one third of the cases of malaria in Negroes and one fourth of the cases in mestizos would have been missed. An enlarged spleen is more likely to be accompanied by parasites in the peripheral blood in a Negro child than in a mestizo child.

Hydroquinidine in Malaria—Bevil states that, in sixteen smear positive patients with malaria, hydroquinidine sulphate in doses of 10 grains (0.65 Gm) daily for four days about four hours before chill time caused in every case disappearance of parasites from the blood and cessation of symptoms by the fifth day. There were four cases of estivo-autumnal infection, and twelve of benign tertian. So far as concerns the immediate results of a short course of treatment, the conclusion of Giemsa

and Werner was confirmed that hydroquinidine appears equal to quinine in antimalarial activity. Hydroquinidine in a single 10 grain (0.65 Gm) dose of the sulphate daily was well tolerated, producing cinchonism (vertigo) in only one case. In one case this dose was given daily for forty-eight days, and a 5 grain (0.3 Gm) dose daily for the following twenty-five days without ill effect.

Archives of Ophthalmology, Chicago

8 797 972 (Dec.) 1932

- Trepining R H Elliot, London England—p 797
Lenticonus Posterior Further Study E J Marsh, Paterson N J—p 804
Choking of Optic Disks in Diseases Other than Tumor of Brain. J T Stough Chicago—p 821
Transplantation of Lacrimal Sac in Chronic Suppurative Dacryocystitis J A MacMillan Montreal Canada—p 831
Antiquity of Forms of Transparent Ocular Media. L D Redway Ossining N Y—p 837
Atypical Pigment Line of Cornea Biomicroscopic and Histologic Study Bertha Klien Moncreiff Chicago—p 847
Retinal Vascular Disease in Case of Acute Lupus Erythematosus Dis seminated. I Goldstein and D Wexler New York—p 852
Muscle Recession with Tendon Stump and Tenon's Capsule Fixation W C Mott Albany N Y—p 858
Sarcoma of Iris Report of Case Complicated by Cyst R E Meek New York—p 864
Venous Angioma of Retina, Optic Nerve Chiasm and Brain Case Report with Postmortem Observations E F Krug and B Samuels New York—p 871
Experimental Cataract in Vitamin G Deficiency C S O'Brien, Iowa City—p 880

Archives of Pathology, Chicago

14 757 930 (Dec.) 1932

- Appendicitis in Measles I Davidson and J M Mora Chicago—p 757
Primary Idiopathic Muscular Hypertrophy of Esophagus with Narrowing of Lumen D A Wood San Francisco—p 766
Influence of Liver Extract and Acute Infection on Reticulocytes and Bone Marrow of Pigeons. Gull Lindh Muller, Boston—p 774
Fibromyoma of Breast P J Melnick Chicago—p 794
Tuberous Sclerosis H L Stewart and E L Bauer Philadelphia—p 799
Blood Cysts on Heart Valves of New Born Infants S A Levinson and A Learner, Chicago—p 810
*Pheochromocytoma of Suprarenal Medulla (Paraganglioma) Clinicopathologic Study A A Eisenberg and H Wallerstein New York—p 818
James Bryce and His Test for Perfect Vaccination Forgotten Chapter in History of Immunology L Hektoen Chicago—p 837
Reaction to Foreign Material in Normal and in Inflamed Gallbladder Experimental Study H H Cooke Rochester Minn—p 856
Production of Gastric and Duodenal Ulcers in Experimental Cinchophen Poisoning of Dogs F H van Wagener and T P Churchill Chicago—p 860

Pheochromocytoma—Eisenberg and Wallerstein tabulate the fifty three cases of pheochromocytoma of the medulla of the suprarenal collected from the literature with their main clinical and pathologic features. They present a new case of malignant pheochromocytoma of the medulla of the suprarenal with the following unusual features: (1) coexistence of another primary malignant neoplasm (of the thyroid), (2) widely spread metastases from the pheochromocytoma, with none from the carcinoma of the thyroid and (3) an unusual blood picture. Only five of the fifty-three cases previously reported were malignant all with widespread metastases. Several cases of benign pheochromocytoma with other tumors have been reported. In only one case was a malignant pheochromocytoma associated with another primary malignant tumor. All known cases of malignant suprarenal pheochromocytoma were bilateral. The incidence of the tumor is about even as to sex; it is greatest on the right side and in patients in the fifth decade of life. The most striking histologic features are the greatest imaginable irregularity in the size and shape of the cells and of the nuclei, the chromaffin reaction and the rich vasculature. About one half of all the patients showed hypertension, some with atherosclerosis and others without it. While in some cases of tumor of the suprarenal cortex hypertension was continuous, in a large majority of the cases of tumor of the suprarenal medulla in which it was present it was of paroxysmal type—but only in the cases in which the tumor was benign as all patients with malignant medullary tumor showed either no hypertension at all or hypertension. The attempts to correlate hyperplasia of chromaffin tissue with hypertension are not successful because of the absence of proof that hypersymprenalism exists in such cases and also because it is not at all established that hypersymprenalism is responsible for hypertension.

Arkansas Medical Society Journal, Little Rock

29 145 164 (Dec.) 1932

- Clinical Features of Pelvic Endometriosis H S Crossen, St Louis—p 145
Treatment of Anginal Heart Failure. A G Sullivan, Hot Springs National Park—p 153
Resume of Gallbladder Cases in Sparks Memorial and St Edwards Mercy Hospital Since 1925 I F Jones Fort Smith—p 157

Bulletin of Neurol Inst of New York, Baltimore

2 347 544 (Nov.) 1932

- *New and Simplified Manometric Test for Determination of Spinal Subarachnoid Block by Means of Inhalation of Nitrite of Amyl C A Elsberg and C C Hare, New York—p 347
*Interstitial Hypertrophic Neuritis of Dejerine and Sottas Report of Three Cases A Wolf, A H Rubinowitz and S C Burchell New York—p 373
Migraine H A Riley, New York—p 429

Amyl Nitrite Test for Spinal Subarachnoid Block—

According to Elsberg and Hare, the effect of the inhalation of amyl nitrite on the pressure in the spinal subarachnoid space is as follows: The dilatation of the blood vessels produces a rise of intracranial pressure with the result that cerebrospinal fluid is expelled from the cranial chamber. The expulsion of fluid occurs somewhat gradually, reaching its maximum in about one minute. As the effects of the drug wear off, the pressure within the cranial cavity slowly falls, as demonstrated by the gradual fall of the column of fluid in the spinal manometer during a period of from two to three minutes. It is probable that the vessels in the vertebral canal also become dilated during the inhalation of the amyl nitrite. When there is no obstruction in the spinal subarachnoid space, dilatation of the spinal blood vessels and the ensuing decrease in size of the spinal pathway is not sufficient to bring about a change in the manometric pressure curve. On the other hand, if there is a growth that encroaches on the canal, the dilatation of the blood vessels of and around the spinal cord (and perhaps of those of the tumor itself) will alter the relative proportions between the size of the vertebral canal and the amount of space occupied by the spinal cord and tumor. Therefore, during the period of inhalation of amyl nitrite the subarachnoid block will become temporarily exaggerated. The authors have made the amyl nitrite tests in sixty-three patients in whom a manometric block was suspected. In thirteen of the patients, a subarachnoid block was demonstrated. The results were so definite that, although their experience with the test in suspected compression of the spinal cord is still small, the following conclusions appear to be justified: 1 In persons in whom a tumor of the spinal cord or some other disease which would produce a spinal subarachnoid block is suspected, the amyl nitrite manometric test is a delicate method for the determination of the presence or absence of a block and for the recognition of the degree to which the free flow of cerebrospinal fluid in the spinal subarachnoid pathway has been interfered with. 2 The amyl nitrite test appears to be more sensitive than the manometric tests made by compression of the jugular veins. In five cases of complete block as shown by the amyl nitrite test, the jugular compression test showed partial block in one, and in another a questionable partial block. In five cases of partial block, as shown by the amyl nitrite manometric test, the jugular compression test gave a questionable result in one and an entirely negative result in three others. In three cases in which there was a marked block as shown by the amyl nitrite test, the jugular compression test showed a marked block in one and a complete block in the two others. In every patient in whom there was evidence of a spinal subarachnoid block by the jugular compression test a block was also demonstrated by the amyl nitrite test. 3 The amyl nitrite test is easy to make and requires no special experience or manipulations. The authors believe that the test is a reliable one and that its simplicity will recommend it and make it valuable for the diagnosis of compression of the spinal cord by tumors and for the recognition of spinal subarachnoid block from other causes.

Interstitial Hypertrophic Neuritis—In a review of the literature on interstitial hypertrophic neuritis, Wolf and his associates found forty cases. Of these, thirteen were clinically typical and histologically proved; four were histologically characteristic but clinically the data were inadequate or had some unusual aspect, twelve were clinically typical but lacked adequate histologic confirmation and in eleven the pathologic

reports were lacking and the clinical features were atypical or ambiguous. The essential clinical criteria of the disease are (1) the signs and symptoms of disease of the peripheral nerves, (2) palpable nerve trunks, and (3) a progressive course. The only exceptions to these criteria were (1) one histologically verified case with a fluctuating course, and (2) one case in which the nerves were microscopically thickened but not to the point of recognition by palpation. One may say, therefore, that occasional cases will be encountered in which the diagnosis can be established only by biopsy. The variable clinical features of the disease are: familial incidence, onset in childhood, motor disturbance with or without sensory loss, Argyll Robertson pupils, intention tremor, ataxia, nystagmus, scanning speech and kyphoscoliosis and other skeletal deformities. Of the twenty-nine cases accepted, thirteen showed a familial history. The onset of the disease was recorded as during the first decade of life in seven cases, during the second decade in six cases, during the third decade in five cases, and after the fourth decade in the remainder of those in which the age was stated. Pathologically, the essential features of the disease are (1) uniform gross thickening of the nerve trunks, of wide distribution, and (2) the characteristic hypertrophy of the Schwann sheaths, which produces the concentric laminated structures that have come to be called onion bulbs. Secondary histologic features are (1) degeneration and shrinkage of the myelin away from the axis cylinder and toward the outer sheath, (2) degeneration and proliferation of the axis cylinder, (3) secondary degeneration in the dorsal columns, and (4) occasional gross thickening of the spinal roots but more frequently microscopic involvement. The authors present the clinical and pathologic observations in three new cases. The patients were two young men and a woman in whom the disease began at the ages of 12, 13 and 26 years. There was no familial history in any of the three cases. The chief clinical features were the signs of a severe, slowly progressive polyneuritis associated with paralysis, muscular atrophy and palpably thickened peripheral nerves. Both the upper and lower extremities were affected, the lower more than the upper. Lancinating pain or muscular cramps occurred in all three patients. Two showed a neuritic type of sensory disturbance. The pupils reacted sluggishly to light in two of the patients and promptly in the third. Fibrillary contractions were present in two of them and absent in the other. None of the patients had scanning speech, nystagmus or evidence of kyphoscoliosis.

Canadian Medical Association Journal, Montreal

27 583 692 (Dec) 1932

- Bronchiectasis: Etiology, Diagnosis and Treatment. W. P. Warner, Toronto.—p. 583
- *Puerperal Morbidity. N. W. Philpott, Montreal.—p. 593
- *Multiple Myeloma. W. A. Jones, Kingston, Ont.—p. 595
- *Abdominoperineal Excision of Rectum with Primary Healing. R. M. Jones and D. W. G. Murray, Toronto.—p. 598
- Erythema Nodosum in Undergraduate Nurses and Its Relationship to Tuberculosis. J. T. Cruise, Ninette, Manit.—p. 603
- *Significance of Urinary Casts in Normal Persons. H. C. Jamieson, Edmonton, Alta.—p. 607
- Reaction of Tissues to Application of Radium. B. T. Simpson, Buffalo.—p. 612
- Undulant Fever Contracted in Laboratory. F. A. Humphreys and W. A. Guest, Ottawa, Ont.—p. 616
- Use of Intravenous Nembutal During Labor. W. F. Abbott, Winnipeg, Manit.—p. 620
- *Diagnosis and Treatment of Intrinsic Cancer of Larynx. G. E. Hodge, Montreal.—p. 623
- Metastatic Epidural Abscess of Spinal Marrow. A. Bellerose and Roma Amyot, Montreal.—p. 629

Puerperal Morbidity—Philpott states that in the Royal Victoria Montreal Maternity every woman is classified as morbid if her temperature goes above 100.5 F at any one time during her stay in the hospital, excluding the first twenty-four hours following delivery. No matter what is the cause of the abnormal temperature, every case is included. Over a period of many years the general morbidity has averaged nearly 20 per cent. If this general morbidity had been estimated by means of one of the more lenient standards, the percentage would have dropped well under 10 for the same series of cases. To simplify matters, a monthly chart was devised whereby the highest postpartum temperature in every case is recorded. The first twenty-four hours post partum is excluded, but from that time until the patient is discharged from the hospital every day is included. The temperature is taken every four hours during the day at 6, 10, 2, 6, 10 and a single rise above 100.5 F,

from whatever cause, classifies the patient as morbid. This method affords a most accurate means of comparing morbidity from month to month and from year to year. It is particularly useful in hospital practice, in which evidence of infection should be detected early and precautions taken to avert mild or severe epidemics. At the end of each year a composite chart is made readily by totaling the figures of each monthly chart. The author presents this method as a suggestion to simplify the estimation of morbidity. It is certain that if one wishes to compare standards with different localities and with different clinics some definite standard should be taken. It also affords a method of appraising the value of any technic, especially with respect to the use of antiseptics before, during or after delivery.

Multiple Myeloma—Jones reports a case of multiple myeloma in which repeated examinations of the urine have been negative and Bence-Jones bodies have never been found in the urine. He believes that roentgen therapy has definitely retarded and caused regression of the lesion in the localities in which it has been found possible to use it. Unfortunately, its use has been limited owing to the fact that the patient is quite ill for ten days or two weeks following each irradiation. This illness is accompanied on each occasion by a papular eruption of the skin over the malar regions.

Abdominoperineal Excision of Rectum with Primary Healing—Jones and Murray review the case records of eight consecutive abdominoperineal excisions of the rectum. Only one death occurred, and this was due to cardiac failure. A primary closure of the perineal wound would have been obtained without doubt. The average stay in the hospital of the seven surviving patients was forty-six days, the average stay after resection was thirty-five and a half days. Of the four patients operated on in one stage, three were able to leave the hospital in three weeks with their wounds completely healed. A review of the hospital records for the previous ten years showed that the average stay in the hospital following abdominoperineal excision of the rectum was sixty days and that on discharge none of the perineal wounds were healed. When only the cases in which a perineal excision had been made, were included, the average stay was found to have been seventy-one days.

Urinary Casts in Normal Persons—Jamieson points out that exercise brings about transitory changes in the normal kidney, resulting in the excretion of albumin, casts, erythrocytes and leukocytes. These are in excess of normal. The more strenuous the exertion, the more albumin present, as a rule, and the more casts and blood cells. In the less vigorous forms of sport, such as badminton and tennis, less disturbance of renal function follows and fewer formed elements are observed. Even after short periods of time in the lordotic posture the excretion of blood cells is noted. In all the exercise tests made by the author, leukocytes were found more frequently than erythrocytes and the latter more often than casts. This is in accord with the relative proportions in the Addis cast count in normal persons. Albumin was slightly less frequent. Any condition that tends to concentrate the urine and increase its acidity may be responsible for an increase of formed elements. It can readily be seen how applicants for life insurance, candidates for aviation and others desiring a clean bill of health for various posts, both home and abroad, may be postponed or even rejected without just cause. The medical practitioner should be on his guard lest he attribute to pathologic conditions of the kidney the presence of these formed elements in the urine of normal persons.

Intrinsic Cancer of Larynx—Hodge emphasizes the fact that chronic hoarseness in an adult demands a laryngeal examination by a competent physician. The laryngeal examination should be complete and the anterior laryngeal commissure if necessary examined by direct laryngoscopy. If the diagnosis is early, laryngofissure will permit a cure in almost 80 per cent of cases of laryngeal cancer. Biopsy should be a conclusive step in the diagnosis of cancer of the larynx. Operative procedures should follow it as soon as possible. Microscopic grading of carcinoma of the larynx is of definite value, with the clinical examination, in determining the type of treatment used and the prognosis. The author believes that laryngectomy is the operation of choice in all cases of extensive intrinsic cancer. Radium and roentgen irradiation should be reserved for inoperable cases.

Florida Medical Association Journal, Jacksonville

19 187 228 (Nov.) 1932

- Diagnosis of Chronic Appendicitis E. W. Bitzer Tampa.—p 195
Blood Pressure. T. M. Rivers Kissimmee.—p 199
*Combined Chylothorax and Chylous Ascites with Extensive Malignant Involvement of Thoracic Duct Case. E. G. Fletcher, St. Augustine.—p 204
Diagnosis and Treatment of Congenital Syphilis J. O. Lisenby, Atmore, Ala.—p 208
Conservation of the Preschool Child's Health H. E. McMurray Tampa.—p 211

Chylothorax and Chylous Ascites—In reviewing the literature, Fletcher found that complete involvement of the thoracic duct with associated chylothorax and chylous ascites is extremely rare and that chylo-ascites is less rare than chylothorax. From a study of the literature and a personally observed case, which he reports in detail, he concludes that surgery is not practical in most cases. Drainage of fluid, other than by aspiration, would apparently invite infection. Chyle should be removed in as small amounts as possible to insure relief to the patient. Cough is an aggravating symptom if the cavity is "sucked dry," and it is conceivable that the negative intrapleural pressure produced by such a procedure would tend to interfere with healing. A certain amount of chyle may be reabsorbed through the lymph nodes, but it is probably negligible. Constant aspiration of chyle soon produces starvation and inanition before collateral chylous circulation can be formed. The mortality in the cases reported in the literature has been between 10 and 50 per cent, most of the patients dying within three weeks. The prognosis depends on the underlying pathologic condition. As carcinomatous metastases were widespread, it seems highly improbable that any treatment would have been successful in the author's case.

Iowa State Medical Society Journal, Des Moines

22: 525 562 (Nov.) 1932

- Diagnosis and Treatment of Cancer of Larynx. W. V. Mullin, Cleveland.—p 525
*Early Diagnosis of Carcinoma of Cervix C. G. Thomas Monticello.—p 528
*Diagnosis of Carcinoma of Stomach H. R. Jenkinson Iowa City.—p 530
Diagnosis of Carcinoma of Lip A. M. Whitehill Boone.—p 533
Rational Management of Tumors of Breast. T. J. Irish Forest City.—p 534
Diagnosis of Carcinoma of Rectum C. G. Bretthauer Holstein.—p 537
Bronchogenic Carcinoma H. M. Horns Iowa City.—p 542

Carcinoma of Cervix—Thomas found that among 387 patients with cancer of the cervix at the Johns Hopkins Hospital only 5 per cent gave a history negative for childbirth or miscarriage. Consequently, in most instances cancer of the cervix is definitely associated with a history of one or more previous pregnancies. Some form of unusual vaginal discharge is the primary symptom in almost every patient. The most frequently encountered symptom is some irregularity in menstrual blood, manifested by a slight prolongation of the normal period, normal duration but more profuse flow, the flow appearing every two or three weeks, regular flow but intermenstrual spotting showing of blood following exercise, or blood after coitus. Pain is never a constant symptom of early cancer. There is only one certain method of diagnosing cancer of the cervix uteri, namely microscopic examination of tissue obtained from the suspected tumor. Every woman who gives a history of intermenstrual bleeding, bleeding after the menopause or any menstrual type of vaginal discharge, should even in the absence of positive physical signs be suspected of having cancer until the contrary has been proved. Biopsy and microscopic examination is indicated if there is an indurated area on either cervical lip, especially if the overlying surface is granular, vegetative or ulcerated and vascular or if there is a hardened or raised area with vascularity, sponginess or a tendency to ulceration on the surface. If the pars vaginalis is normal in appearance but the intracervical mucosa seems vascular or granular the curet may reveal definite intracervical cancer, most often adenocarcinoma. Carcinoma of the cervix must be differentiated from: (1) eversion of the cervix with erosion or granuloma formation; (2) cervical ulceration occurring in cases of prolapse; (3) cervical polyps when they bleed or undergo secondary changes secondary to interference with circulation; (4) nabothian cyst when they cause enlargement and irritate normal cells of the cervix; (5) submucous tissue protruding from the cervix with ulceration and bleed-

ing, (6) interstitial cervical myoma and sarcoma of the cervix, which is exceedingly rare, (7) gonococcal condylomas, and (8) syphilis, chancroid and tuberculosis.

Carcinoma of Stomach—Jenkinson believes that the onset of cancer of the stomach is most frequent between the ages of 40 and 65, with males predominating. The previous observations are usually negative, the patient often stating that he has never been aware that he had a stomach. In a small percentage of cases superimposed on an old gastric ulcer, there may be a history of long standing. As a rule the onset is insidious, varying with the type and location of the lesion. The earliest symptoms are anorexia, discomfort and a feeling of fullness during or immediately after eating, gas or eructation of food, usually absence of pain, marked loss of strength, slight loss in weight and slight secondary anemia. The early physical observations are negative and the diagnosis rests on the history, laboratory observations and roentgen examination. The author concludes that if the mortality rate from cancer of the stomach is to be lowered the diagnosis must be made early. In the majority of cases in which the disease is apparent and readily diagnosed, only palliative treatment remains and the possibility of a cure has long since passed. There are no symptoms or physical, laboratory or roentgen observations that are pathognomonic of this condition. Each case must be considered as a distinct entity. The history, physical examination and laboratory and roentgen observations must be carefully studied and correlated if one is to combat gastric cancer successfully.

Johns Hopkins Hospital Bulletin, Baltimore

51 263 334 (Nov.) 1932

- Perleche Consideration of Its Etiology and Pathology M. H. Goodman Baltimore.—p 263
Note on Communicability of Colds P. H. Long, Eleanor A. Bliss and Harriet M. Carpenter, Baltimore.—p 278
*Use of Iodine in Preoperative Treatment of Hyperthyroidism Remarks on Iodine Remissions as Observed in Baltimore, Md. W. L. Winkenwerder and D. McEachern Baltimore.—p 282
Acute Experimental Glomerulitis Following Injection of Streptococcus Viridans into Renal Artery N. McLeod and G. G. Finney Baltimore.—p 300
Intravenous Urography in Children. F. F. Schwenker Baltimore.—p 318
Spectrographic Detection of Lead in Blood as Aid to Clinical Diagnosis of Plumbism P. G. Shipley, T. F. M. Scott and H. Blumberg Baltimore.—p 327
Failure to Induce Ovulation in Rabbit by Blood Transfusion from Pregnant Doe E. Bunster Rochester N. Y.—p 329

Iodine in Treatment of Hyperthyroidism—Winkenwerder and McEachern present the data on 157 cases of hyperthyroidism treated with iodine. In 144 patients the point of maximum improvement was reached in from eight to thirty-two days. The average for the entire series was 13.5 days. An average decrease of 50 per cent in the metabolic rate was obtained regardless of its initial level prior to iodine therapy. No essential difference between cases of exophthalmic goiter and nodular goiter with hyperthyroidism was noted in their reaction to iodine. Of the fourteen cases of the latter type, thirteen showed remissions similar in rate and degree to those exhibited by the entire series. The reactions to iodine were: (1) slow prolonged improvement; (2) reappearance of signs and symptoms of the disease during prolonged administration; (3) two consecutive remissions occurring in the same patient with only a short interiodine period (two weeks); and (4) exacerbation of the disease coincident with iodine administration. The authors place emphasis on the advisability of administering iodine according to a definite course with operation almost without exception. A preliminary preiodine period of general medical care, they believe will produce a greater ultimate improvement than that obtained by iodine alone. Iodine should be restricted with few exceptions in the preoperative preparation of the patient. The authors conclude that the various forms of iodine in use are compound solution of iodine solution of potassium iodide, ethyl iodide gas and solution of sodium iodide. The administration of compound solution of iodine in doses of from 5 to 10 drops daily (30 to 60 mg. of iodine) or potassium iodine in doses of from 3 to 5 grains daily (0.2 to 0.3 Gm.) is more than adequate and allows a wide margin of safety. Potassium iodide or sodium iodide, in aqueous solution has proved a satisfactory form of administration. The authors have obtained maximal remissions in five patients with hyperthyroidism to whom potassium iodide was administered in doses of 15 grains (1 Gm.) daily.

Journal of Allergy, St Louis

4 186 (Nov) 1932

- *Allergic Activity of Proteins Sterilized by Dry Heat B Z Rappaport, Chicago—p 1
- *Clinical Experiences with Synthetic Ephedrine R A Kern and H P Schenck, Philadelphia—p 9
- Skin Tests in Four Thousand Five Hundred and Eighty Nine Cases of Allergic Disease with Criticism Concerning Elimination Diets G Pinness and H Miller, Los Angeles—p 18
- Development of Sensitiveness in an Allergic Person Case J H Black, Dallas Texas—p 24
- Estimate of Ketogenic Diet in Bronchial Asthma H L Alexander, St Louis—p 26
- *Poison Ivy New Method of Immunization Preliminary Report F Maisel, New York—p 35
- *Relationship of Heat and Effort Sensitiveness and Cold Sensitiveness to Functional Cardiac Disorders Including Angina Pectoris, Tachycardia and Ventricular Extrasystoles W W Duke, Kansas City, Mo—p 38
- Some Observations on Value of Intratracheal Injections of Iodized Oil for Bronchial Asthma W Anderson Pittsburgh—p 44
- Summary of Results of Ten Years Hay Fever Treatment T D Cunningham and A M Wolfe Denver—p 48
- *Unusual Cases of Migraine with Especial Reference to Treatment A M Goltman, Memphis Tenn—p 51

Allergic Activity of Proteins—Rappaport describes experiments in which he demonstrated that spores of *Bacillus subtilis* when dried in protein material are destroyed by exposure to dry heat at 140 C for two hours. The antigenicity of egg albumin, determined by the skin reaction in sensitive patients, is not affected by heating the dry material at 140 C for two hours. The antigenicity of pollen, determined by the skin reaction and by its effectiveness in the treatment of hay fever, is not affected by dry heat at 140 C for two hours.

Synthetic Ephedrine—Kern and Schenck consider that synthetic ephedrine is probably as efficacious as natural ephedrine in the palliative treatment of asthma, hay fever and vasomotor rhinitis. With neither the natural nor the synthetic product is there any relation of the efficacy of the drug to the duration of the disease or the age of the patient. The acquisition of tolerance was not noted in the case of the synthetic drug, and it was rare and almost negligible with the natural drug. The effect on blood pressure by the synthetic drug when orally administered in 25 milligram doses is somewhat less than that of the natural product. Synthetic ephedrine produces unfavorable side effects in less than 9 per cent of patients as opposed to over 23 per cent following the use of the natural ephedrine. These effects in the authors' experience were usually milder after synthetic ephedrine and in only three observed cases necessitated discontinuance of the drug. This relative freedom from undesirable side effects constitutes a real advantage of synthetic over natural ephedrine. True hypersensitiveness to both natural and synthetic ephedrine has been observed. Synthesis makes possible a constant and stable supply of the drug.

Poison Ivy—Maisel describes a new method of local immunization to poison ivy which involves the direct application of gradually increasing doses of an extract of poison ivy by means of daily baths. This procedure proved harmless and successfully prevented recurrent attacks of poison ivy in a patient in whom all other recognized methods of therapy had failed. In order to obviate the danger of inducing an attack of dermatitis, the initial dilutions must be very great and the concentration must be increased slowly and continuously. The author suggests that other types of contact dermatitis may be treated by this method.

Heat, Effort and Cold Sensitiveness—Duke mentions three types of cardiac disorder: extrasystoles, tachycardia and angina pectoris, which occurred in persons who gave normal physical examinations. These abnormalities could be brought on consistently by the effect of the sense of heat or by effort in three cases and by the sense of cold in the other. They could be relieved by applying an agent the reverse of the one that caused the abnormal reactions. The conditions were benefited by treatment with the agent responsible for the illness. The author believes the disorders are due to disease in the heat regulating mechanism and in these cases by abnormal responses to the sense of heat or the sense of cold by the heat produced by physical or mental effort.

Unusual Cases of Migraine—Goltman emphasizes the fact that persons with migraine cannot be treated as a group but must be treated as individuals. True allergic migraine is

probably hereditary in 100 per cent of cases. Migraine has been classified from a general medical point of view. Foods are of paramount importance in the majority of cases. In some cases positive skin reactions may be obtained, but elimination of these specific foods affords the patient no relief. Inhalants, such as animal hair and danders, pollen, orris root and insect powder, are the main factors in many cases. Elimination of inhalants alone does not always procure relief. Treatment with specific extracts is necessary in some of these cases. A combination of allergic and endocrine migraine is quite common. Combined therapy is necessary for relief.

Journal of Bacteriology, Baltimore

24 341-422 (Nov) 1932

- *Effects of Pancreatic Enzymes on Tubercle Bacillus W N Berg, New York—p 341
- Dissociation of *Mycobacterium Lepae* G B Reed, Kingston, Ont., Canada—p 357
- Dissociation and Life Cycle of Bacillus I M Lewis, Galveston, Texas—p 381

Effects of Enzymes on Tubercle Bacillus—Berg reports that tubercle bacilli undergoing autolysis in vitro liberated soluble digestion products. Among these were acids and reducing substances. Tubercle bacilli undergoing pancreatic plus autolytic digestion in vitro liberated greater quantities of acids and reducing substances than by autolysis alone. The swelling of tubercle bacilli in suspensions containing added pancreatic enzymes gave additional proof that digestion took place. Autolytic enzymes alone brought one fourth of the weight of tubercle bacilli into solution in four days, and one third in nine days. These proportions were only slightly increased by added pancreatic enzymes.

Journal of Experimental Medicine, New York

56 777-947 (Dec 1) 1932

- Studies on Bartonella Muris Anemia VI Lipoid Extract of Spleen that Prevents Bartonella Muris Anemia in Splenectomized Albino Rats D Perla and Jessie Marmorston Gottesman, New York—p 777
- Id VII Protective Action of Copper and Iron Against Bartonella Muris Anemia D Perla and Jessie Marmorston Gottesman, New York—p 783
- Transmissible Tumor Like Condition in Rabbits R E Shope, Princeton, N J—p 793
- Filtrable Virus Causing Tumor Like Condition in Rabbits and Its Relationship to Virus Myxomatosis R E Shope, Princeton, N J—p 803
- Ammonium Chloride Decalcification, as Modified by Calcium Intake: Relation Between Generalized Osteoporosis and Osteitis Fibrosa H L Jaffe, A Bodansky and J P Chandler, New York—p 823
- Maternal Transmission of Vaccinal Immunity in Swine J B Nelson, Princeton, N J—p 835
- Studies on Blood Cytology of Rabbit IX Blood Platelet Counts on Healthy Male Rabbits A E Casey and P D Rosahn, New York—p 841
- Transmission of Neurotropic Yellow Fever Virus by Stegomyia Mosquitoes N C Davis, W Lloyd and M Frobisher, Jr, Rio de Janeiro, Brazil—p 853
- Cellular Reactions to Lipoid Fractions from Acid Fast Bacilli K C Smithburn and Florence R Sabin, New York—p 867
- Some Physiologic Characteristics of Epithelial Tumors of Mouse L Santesson—p 893
- Study of Dissociation of Rawlins Strain of Bacterium Typhosum with Especial Reference to Its Use in Production of Antityphoid Vaccine F B Grinnell, Boston—p 907
- Extracardiac Anastomoses of Coronary Arteries C L Hudson, A R Moritz and J T Wearn, Cleveland—p 919
- Augmentation of Extracardiac Anastomoses of Coronary Arteries Through Pericardial Adhesions A R Moritz, C L Hudson and E S Orgain, Cleveland—p 927

Journal of Immunology, Baltimore

23 349-421 (Nov) 1932

- *Are Antiviruses Specific? A Besredka, Paris France—p 349
- Serologic Studies on Iodinated Serums I Precipitins and Precipitinogens J Jacobs, Boston—p 361
- Id II Anaphylaxis J Jacobs, Boston—p 375
- *Studies on Variability of Tubercle Bacilli VII Antigenic Activity of S and R Cultures as Measured by Complement Fixation Christine E Rice and G B Reed, Kingston, Ont., Canada—p 385
- Active Immunization of White Mice by Nonpolysaccharide and Probably Nonprotein Derivative of Pneumococcus L D Felton, Boston—p 405

Are Antiviruses Specific?—Besredka reviews the literature on the specificity of the antiviruses. From the facts reported he concludes that antiviruses are endowed with a specificity as strict as that of the bacteria from which they come.

Variability of Tubercle Bacilli—Rice and Reed found that the S type of various strains of acid-fast bacteria, *Mycobacterium leprae* and human, bovine and avian tubercle bacilli contain antigenic substances not present in the R type of the same strain, dissociation apparently being accompanied by a considerable loss in antigenic complexity. Immune serums prepared against such S organisms contain certain antibodies reacting with extracts of the homologous S organisms but not with the homologous R type, other antibodies reacting with both S and R of the same species and a third type of antibody detected by antigens prepared from the other species of acid-fast bacteria, that is, a group antibody. Antiserums prepared against R organisms, on the other hand, appear to lack the S-specific antibody that is found in S antiserum but contain a much higher proportion of antibodies reacting with extracts prepared from other acid-fast species.

Journal of Industrial Hygiene, Boston

14 317-344 (Nov.) 1932

- Problem of Possible Health Hazard of Lead Weighted Silk Fabric. L. T. Fairhall and J. W. Heim. Boston.—p. 317
Determination of Single Index of Atmospheric Conditions in Relation to Physiologic Effects. H. M. Vernon. London, England.—p. 328
Quantitative Determination of Fine Soot Inhaled by Man. A. I. Burstein, Odessa, the Ukraine.—p. 339

Journal of Nutrition, Springfield, Ill.

5 539-615 (Nov.) 1932

- Relation of Vitamin B Complex to Renal Enlargement Caused by Cystine and Protein in Diet of Rat. B. B. Longwell, R. M. Hill and R. C. Lewis. Denver.—p. 539
Metabolism in Pregnancy IX. Fetal Influence on Basal Rate. A. W. Rowe and W. C. Boyd. Boston.—p. 551
Protein Requirements of Albino Mouse. F. C. Bing, W. L. Adams and R. O. Bowman. Cleveland.—p. 571
Heat Production of Unusually Large Rats During Prolonged Fasting. F. G. Benedict, Kathryn Horst and L. B. Mendel. New Haven, Conn.—p. 581
Calcium and Phosphorus of Saliva in Relation to Dental Caries. Rebecca B. Hubbell and R. W. Bunting. Ann Arbor, Mich.—p. 599

Calcium and Phosphorus of Saliva—In their study of a group of 102 children, aged from 7 to 16 years, Hubbell and Bunting observed no relation between the calcium and phosphorus content of the saliva and the occurrence of dental caries. When the home diet was supplemented by the daily addition of one quart of milk and two ounces of tomato juice, with or without viosterol, there was a slight tendency toward a decrease in the incidence of dental caries. This improvement in tooth condition was not accompanied by any consistent change in the salivary calcium and phosphorus. They present evidence that the volume of saliva secreted in a unit time should be considered in interpreting salivary analyses.

Journal of Pediatrics, St. Louis

1 537-660 (Nov.) 1932

- Child Health and Protection from the Doctor's Point of View. E. H. Cary. Dallas, Texas.—p. 537
Parathyroidectomy in Generalized Osteitis Fibrosa Cystica. Report of Child Two and One Half Years of Age. J. F. Landon. New York.—p. 544
Immunity to Scarlet Fever by Inunction Method. Preliminary Report. E. F. Martner. Detroit.—p. 555
Practical Approach to Mental Health of Childhood with Especial Reference to Intelligence Aspects. Esther L. Richards. Baltimore.—p. 558
Definite Sign Pathognomonic of Paranasal Sinusitis. Preliminary Report. Maud Loeber. A. J. McComiskey and W. F. Henderson. New Orleans.—p. 565
Growth Problems and Their Relation to Zones of Normal Physiologic Reactions. W. P. Lucas, Helen Brenton Pryor, C. Bost, S. T. Pope and Marion C. Henderson. San Francisco.—p. 572
Lobar Pneumonia in Infants and Young Children. C. G. Grulee and J. Mullerlin. Chicago.—p. 593
Temperature and Precipitation in Relation to Morbidity Rates of Poliomyelitis. J. A. Toomey and M. H. August. Cleveland.—p. 601
Intra Uterine Pneumonia with Evidence of Healing. Report of Case. D. Anderson and J. F. Pohl. Minneapolis.—p. 605
Aniques of Pediatric Interest. T. G. H. Drake. Toronto, Canada.—p. 612

Immunization to Scarlet Fever—Martner states that since the report of the Dicks in 1924 of the isolation of a toxin associated with the streptococcus of scarlet fever interest in the control of scarlet fever has been renewed. The method that he describes differs in several respects from those previously reported. The work is based on skin absorption rather than subcutaneous or intramuscular injection of the scarlet fever toxin. In the preparation of the material he

mixed Dick toxin of a potency of 25,000 skin test doses per cubic centimeter, as standardized by the Michigan Department of Health, with wool fat, so that one tube of ointment (2 cc.) contained 25,000 skin test doses of toxin. The toxin used in making the ointment was freshly prepared and the finished ointment was used within two months after its preparation. The base was perfumed to overcome the odor. In administering the preparation, the patient's back was washed with soap and water, dried thoroughly and then sponged with a 70 per cent alcohol solution. After the excess alcohol had been wiped off, the back was allowed to dry before the material was applied. The contents of one tube of ointment (25,000 skin test doses of toxin) were applied to the cleansed surface and thoroughly massaged into the tissues by the hands. A rubber glove was worn to facilitate the work and to prevent any loss of material by absorption into the hands. In his studies the author observed that scarlet fever toxin combined with wool fat and applied percutaneously by massaging caused a Dick positive reaction to become Dick negative in a large proportion of cases.

Paranasal Sinusitis—According to Loeber and her associates, a roughly triangular swelling of the portion of loose skin beneath the outer third of the lower lid over the malar prominence is pathognomonic of a pathologic process in one or more of the paranasal sinuses of that side. This has been confirmed by roentgenography. The affected sinuses need not be filled with pus to produce the sign, but it is found as well in those sinuses exhibiting only a diseased lining membrane. Amelioration or disappearance of the sign was coincident and proportional with the local improvement of the sinuses involved. The authors believe that the recognition of this sign permits of an early diagnosis of sinusitis which may offset the sequelae of a chronic focus of infection.

Journal of Preventive Medicine, Chicago

6 425-518 (Nov.) 1932

- *Some Problems of Salmonella Food Poisoning. The Tenth William Thompson Sedgwick Memorial Lecture. W. G. Savage. Somerset, England.—p. 425
*Subcutaneous and Intradermal Smallpox Vaccination. B. E. Roberts, Poughkeepsie, N. Y.—p. 453
Passive Immunity to Infection with Metazoan Parasite *Cysticercus fasciolaris*, in Albino Rat. H. M. Miller Jr. and Margaret L. Gardner.—p. 479
Bacterial Dissociation and Theory of Rise and Decline of Epidemic Waves. H. Zinsser and E. B. Wilson. Boston.—p. 497

Salmonella Food Poisoning—Savage points out the enormous importance of food manipulation, if one deals only with outbreaks of food poisoning due to living *Salmonella* strains. This is not due to the opportunities of infection from human sources, since infection does not occur in that way. There are, however, at least four significant factors. In the first place, the food often is not used fresh as it comes into the place where it is to be prepared (bakery, butcher shop, private home or wherever it may be) but is kept about, either before it is made up into the finished article or after it is so made. Again and again it is shown that the original food is harmless and that the infection with the bacillus takes place on the premises. In many outbreaks the food sold first causes no illness, although the facts suggest that it is already infected, while the food sold last—that is, allowing a longer period for the multiplication of the *Salmonella* bacilli—is the most poisonous, causes the most severe attacks and includes the fatal cases. In the second place, the manipulation often involves heating and then the food is cooled slowly, so that for hours it is at temperatures suitable for the rapid multiplication of any *Salmonella* strains that have gained access either during preparation or subsequently. A third important point but one which applies only to certain foods, is that in many cases jelly or other material particularly suitable for bacterial multiplication is added or is produced in the food as part of the manufacture. The last point is the frequency with which these preparation processes and the conditions of subsequent storage are carried out under totally unsuitable conditions. Undoubtedly these are often minimized in the published report, since attention is not directed to the premises except as a result of the outbreak and consequently some time after its occurrence. Any wide awake food preparer naturally cleans up everything while a veil of reticence and sometimes an exhibition of active

mendacity settles on the personnel. Another factor influencing infection in food poisoning outbreaks is the problem of temperature. The seasonal prevalence of these outbreaks is notorious and it is even more marked when those due to living *Salmonella* strains are considered. Undoubtedly more rapid multiplication of the bacilli in warm weather is an important factor. The increased presence of these bacilli in reservoirs of infection in summer may also play a part, as also may the possibility of fly infection. None of these explanations seem wholly adequate.

Smallpox Vaccination—Roberts describes the use of the subcutaneous and intradermal methods of vaccination over a period of four years among 266 children in an institution. A simple technic was used, which could readily be adopted in ordinary practice. The best results in the work at this institution were obtained by the intradermal method, using living virus in dilutions of around 1:1,000. The reactions were mild, and vesiculation and scarring were trivial or absent. The appearance of vesicles and scars was even less frequent following subcutaneous vaccination with high dilutions, but persistent indurations were occasionally an undesirable result of this method. Subsequent revaccination, sometimes performed as long as four years after the initial vaccination, revealed no appreciable difference in the degree of immunity conferred, as compared with the cutaneous method, irrespective of the dilution. The advantages of the subcutaneous and intradermal methods outweigh the disadvantages, and their wider use is recommended.

Kansas Medical Society Journal, Topeka

33 435 472 (Dec.) 1932

- Some Observations on Smallpox G. W. Davis, Ottawa—p. 435
Stricture of Esophagus Case L. D. Johnson, Chanute—p. 441
Visible Eye Diseases of Importance to General Practitioner C. E. Hassig, Kansas City—p. 444

Medical Journal and Record, New York

136 441 484 (Dec. 7) 1932

- Intestinal Toxemia Its Diagnosis and Treatment M. J. Synnott, Montclair, N. J.—p. 441
Comparison of Clinical and Postmortem Diagnoses in Three Hundred and Fifty Four Cases J. C. Doane, Philadelphia—p. 447
Biophysiologic Appetizers in Nutrition of the Child G. D. Scott, New York—p. 449
Appendicitis from Point of View of a General Practitioner A. H. Moore, Doylestown, Pa.—p. 451
Some Clinical Considerations of Trauma and Cardiovascular System H. R. Miller, New York—p. 453

Military Surgeon, Washington, D. C.

71 473 569 (Dec.) 1932

- Study of Antiscorbutic Vitamin E. B. Vedder—p. 505
Automobile Casualties G. F. Lull—p. 516
Some Aspects of Chinese Medicine F. Harbert—p. 520
Myoma Malignum of Rectum Case F. S. Wright and M. W. Hall—p. 527
New Methods in Medical Reserve Training W. L. Hart—p. 532

New England Journal of Medicine, Boston

207 815 862 (Nov. 10) 1932

- Presentation of Two Cases I. End-Result of Conservative Surgery on Lone Kidney II. Renal Tumor Simulating Renal Calculus C. S. Swan, Boston—p. 815
*Study of Renal Infarction J. D. Barney, Boston—p. 817
Perinephric Abscess in Infants R. C. Graves, Boston, and S. J. Solomon, Everett, Mass.—p. 819
Carcinoma of Bladder Associated with Formation of Mucus W. C. Quinby, Boston—p. 821
Bladder Reactions Following Application of Radium to Uterus G. G. Smith, Boston—p. 822
Prostate and Seminal Vesicles as Focus for *Staphylococcus Septicemia* A. Riley, Boston—p. 825
*Massive Intraperitoneal Hemorrhage from Ruptured Subserous Veins on Surface of Uterine Fibroids A. A. Shapira and A. Starr Boston—p. 827
Simple Method of Administering Approximately Accurate Mixtures of Oxygen and Carbon Dioxide C. C. Lund Boston—p. 829
*Tuberculin Test of Value in Adults Two Hundred and Twenty Five Cases R. B. King, Boston—p. 831

Renal Infarction—From a study of a case, which he reports, the literature, and a series of 143 necropsy cases, Barney concludes that 1. Renal infarction occurs in either sex and at almost any age, usually in the adult between the age of 30 and 50. 2. There may be no clinical symptoms to indicate its presence. Whatever symptoms are noted may be

due quite as much to the condition causing the infarction as to the infarction itself. In the event of a total infarction of one or both kidneys, pain and tenderness of definite severity are to be expected. 3. Acute or chronic endocarditis, generally with extensive arteriosclerosis, is to be looked for in the vast majority of these cases. Occasionally, however, infarcts result from chronic or acute sepsis in the presence of a normal heart. 4. Prognosis depends largely on and is really that of the underlying condition, i. e., endocarditis, arteriosclerosis and sepsis. The patient has a poor chance of recovery. 5. No definite rule can be laid down as to treatment. The infarct which causes no symptoms and which cannot be demonstrated during life will generally take care of itself. The treatment of those conditions that favor the formation of infarcts is much more important. These conditions being generally chronic and incurable, their treatment is difficult and of little value.

Massive Intraperitoneal Hemorrhage—Shapira and Starr give a brief survey of the literature and report two cases of massive intraperitoneal hemorrhage which illustrate the essential features of this usually unrecognized condition. The picture that these patients present varies with the amount of hemorrhage. The differential diagnosis of this condition, when associated with severe bleeding, includes lesions of the female genital tract that can produce serious intraperitoneal hemorrhage: ruptured ectopic pregnancy, ruptured corpus luteum cysts of the ovary, and torsion of adnexal tumors. When hemorrhage is not the predominant feature, the condition may simulate that of acute appendicitis, ovarian cyst with twisted pedicle, or perforation of a viscus. The preoperative diagnosis of this condition is difficult. However, acute abdominal pain and tenderness, with signs of hemorrhage, together with the presence of a fibroid tumor, should suggest the diagnosis of intra-abdominal hemorrhage from ruptured veins on the surface of the tumor. The treatment is laparotomy with hysterectomy if the condition of the patient warrants a major intervention. If the bleeding is alarming, blood transfusion and abdominal section, with ligation of the bleeding vessel, have been recommended by Ransohoff and Dreyfoos. One could then perform hysterectomy some time after the patient has recovered.

Tuberculin Test—King used the quantitative intradermal tuberculin test in a series of 225 adults suffering from a wide variety of disorders. The result of the test was in accord with the clinical diagnosis 205 times, or 90 per cent. His results are in close agreement with those previously reported by Atsatt, and by Blair and Galland, in a series of tests on patients with osteo-articular disease. In view of the need for a simple method of determining tuberculous activity in the adult, the quantitative tuberculin test should receive far more consideration than it has been accorded heretofore. The technic he used is as follows: Saranac human tuberculin was procured for use in all the tests. A dilution, strong enough to give a positive skin reaction in patients with proved active tuberculosis and yet weak enough to give no reaction in those in whom there was no evidence of active or recent tuberculous infection, was determined. Forty young adult persons, twenty with proved active tuberculosis and twenty healthy physicians and medical students, were tested. A series of intradermal injections, each consisting of 0.1 cc. of tuberculin, the dilutions of which ranged from 1:1,000 to 1:40,000, were given at the same time to each subject. It was found that the "critical threshold" for the tuberculin used was at a dilution of 1:20,000. At so high a dilution, none but the actively tuberculous persons gave a positive skin reaction. A majority of these gave positive reactions to dilutions of 1:40,000 as well but, since all did not, 1:20,000 was selected as the safe threshold. The tuberculin was diluted with physiologic solution of sodium chloride to which 0.25 per cent phenol had been added as a preservative. All tests were made on the inner aspect of the forearms. The skin was gently cleansed with alcohol and allowed to dry. A careful intradermal injection of exactly 0.1 cc. of the solutions was made at well separated sites, the stronger solutions being injected proximal to the weaker. Separate sterile tuberculin syringes and needles were used for each solution. In most cases, besides the routine injection of the diagnostic 1:20,000 dilution, injections of dilutions of 1:1,000 and 1:40,000 were made at the same sitting. In this way greater information regarding the tested individual's allergy was obtained than when the 1:20,000 dilution alone was used. Those showing no reaction to 1:1,000

were tested with stronger solutions, sometimes with 1 100 or even 1 10. If there still was no evidence of skin hypersensitivity, such people were considered to be entirely free from tuberculous infection. The tests were read at twenty-four and forty-eight hours, the positive reactions almost invariably being maximal at the latter time. An area of erythema, nearly always indurated, 1 cm or more in diameter, was considered a positive reaction to a 1 20,000 dilution, unless the control injection, consisting of physiologic solution of sodium chloride to which 0.25 per cent phenol had been added, also was positive.

New York State Journal of Medicine, New York

32 1283 1340 (Nov 15) 1932

- *Pulmonary Actinomycosis. Report of Two Cases. W. M. Genthner and R. K. Pendleton. Brooklyn.—p. 1283
- Recent Advances in Knowledge of Function of Ovary. R. Kurzrok. New York.—p. 1287
- New Method of Outlining Urinary Tract by Means of Uroselectan Injected Intravenously. O. S. Lowsley. New York.—p. 1292
- Value of Equilibrated Salt Diet in Treatment of Various Dermatoses. Modification of Hermannsdorfer Sauerbruch-Gerson Diets. J. J. Eller and C. R. Rein. New York.—p. 1296
- Utilization of Tonsil Clinics for Developing Bronchoscopic Orientation. A. F. Holding. Albany.—p. 1300
- Possible Etiology of Raynaud's Disease. A. F. Kraetzer. New York.—p. 1304
- Thallium Acetate Its Toxicity and Depilatory Action. H. Goodman. New York.—p. 1307

Pulmonary Actinomycosis—In reviewing the literature, Genthner and Pendleton found few cases of actinomycosis in which the disease was limited to the lung bed. In reporting the two cases that occurred in one year at the Long Island College Hospital, the authors are attempting to give to the clinician a syndrome on which a reasonable diagnosis of this condition may be made. Pulmonary actinomycosis may be diagnosed by persistent severe pain in the chest, associated with a cough with expectoration of a mucoid and bloody sputum, loss of weight, night sweating, weakness and emaciation. This severe, persistent, boring type of pain is often the patient's dominating symptom and is emphasized by all writers as being most significant. There is usually a slight secondary anemia, moderate leukocytosis of from 10,000 to 15,000, and an increase in polymorphonuclear leukocytes to about 80 per cent. The temperature is septic with an associated rise in pulse rate. This leukocytosis and an increase in polymorphonuclear leukocytes is among the important means of differentiating this condition from pulmonary tuberculosis, with which it is most apt to be confused.

Philippine Islands Med Association Journal, Manila

12 537 598 (Nov.) 1932

- Observations on Readmitted Cases with Especial Reference to Pre-disposing Causes of Relapse in Leprosy. I. Factors Already Operating Prior to Parole. C. B. Lara Culion.—p. 537
- Id. II. Factors Operating Subsequent to Parole. C. B. Lara Culion.—p. 552
- Social Problem of Tuberculosis. A. Trepp. Santol.—p. 559
- Is Sanitation Practiced on Haciendas and in Barrios? L. Gamboa Silay.—p. 565
- Analysis of Maternity and Infant Cases Admitted in Bacolod Maternity and Children's Hospital from January 1924 to December 1931. P. Valino. Bacolod.—p. 567
- Some Factors Affecting Attendance at Puericulture Center Clinics. C. Camomot. Zamboan. Cebu.—p. 573
- Simelli's Operation in Chronic Uterine Inversion. C. D. Franco. Manila.—p. 577

Radiology, St. Paul

19 337-404 (Dec.) 1932

- Surgical Treatment of Postirradiation Keratosis. V. P. Blair. J. B. Brown and W. G. Hammi. St. Louis.—p. 337
- Treatment of Radiation Injuries of Skin. R. H. Stevens. Detroit.—p. 345
- Precancerous and Pseudocancerous Lesions of Cervix Uteri and Their Treatment. G. Gellhorn. St. Louis.—p. 351
- Some Considerations on Elective Action of Rays. N. Dobrovolskaya. Zavadskaya. Paris. France.—p. 354
- Diagnosis of Duodenal Ulcer. G. Peter. Mexico City. Mexico.—p. 369
- Technic of Stereovideoscopy. J. W. M. Du Mond. Pasadena. Calif.—p. 366
- Neurological Considerations of Roentgen Rays. S. W. Donaldson. An Arden. Mich.—p. 368

Diagnosis of Duodenal Ulcer—Peter states that for the last twenty years, since he has employed the method of Berg, he has been able to demonstrate sure and objective signs of duodenal ulcer with greater frequency than in the preceding

years of his radiologic experience. He has examined the gastrointestinal tract in 294 cases and found duodenal ulcers in 107. Of these, seventy-nine were severe and twenty-eight suggestive. Of the seventy-nine cases, sixty-six showed the classic symptoms of acute duodenal ulcer. Thirteen presented chronic deformities due to scars. Among the cases diagnosed by the Berg method, a few at operation proved to be ulcer of the duodenum. The number of such cases is, however, limited, owing to the modern conservative method of treatment, which is gaining ground steadily, thanks to this method, which helps one to diagnose the ulcer earlier. The signs seen in the roentgenograms correspond exactly to Berg's objective signs. An adequate technic helps to detect them without fail. It is understood that the radiologist has to be sufficiently experienced in fluoroscopic work to distinguish between a slow peristaltic wave and a constant retraction, a constant niche and a mass of barium retained between the normal folds of the mucosa, a normal recess and a duodenal pouch caused by dilatation, and a deformity due to internal defects and one due to external compression or simple peristalsis.

Rhode Island Medical Journal, Providence

15 189 202 (Dec.) 1932

- Observations on Serum Therapy. F. G. Blake. New Haven. Conn.—p. 189
- Chronic Maxillary Sinusitis and Its Clinical Significance. B. S. Sharp. Providence.—p. 194

Yale Journal of Biology and Medicine, New Haven

5: 97 200 (Dec.) 1932

- The Experiment at Bicetre 1793. L. H. Cohen. New Haven, Conn.—p. 97
- Commoner Functional Disorders Known as Psychoneuroses. Their Recognition and Management. L. F. Barker. Baltimore.—p. 107
- *Study of Vitamin A in Relation to Experimental Cancer. C. Kuh. New Haven. Conn.—p. 123
- *Diagnostic Problem in Poliomyelitis. Consideration of Typical and Suggestive Cases Showing Normal Spinal Fluid. J. D. Trask and P. A. Harper. New Haven. Conn.—p. 155
- De Globulis Sanguinis Colore et Qualitatibus (1650-1860). Elizabeth R. B. Smith and P. K. Smith.—p. 165

Relation of Vitamin A to Cancer—Kuh reports that the study of the effect of varying dosages of vitamin A from various sources on the growth of tumors of mice under controlled conditions showed that the tumor implants of mice were not affected by those amounts of vitamin A contained in the usual diet, supplemented by as much as 500 units of vitamin A. On the other hand, when maximal dosages (1,000 or more vitamin A units) of the provitamin carotene were administered, varying degrees of inhibition of tumor growth were observed. The utilization of the carotene was limited by a number of factors, including apparent failure on the part of the animal to convert the carotene to vitamin A, this incompetence being due to the absence from its liver of the enzyme carotenase. The problem of inhibiting tumor growth by means of vitamin A becomes one of determining whether more efficient methods of administration can be devised. Two possible procedures are worthy of trial: (1) the feeding of carotene plus the injection of a source of the enzyme carotenase, and (2) the feeding of new preparations of vitamin A concentrate. The administration of the maximal dosages of vitamin A appeared to be without a harmful effect on the animals. This suggests that the inhibited growth of the tumor is the result of a specific action of the vitamin A on the cancer cell.

Diagnostic Problem in Poliomyelitis—Trask and Harper present data showing that, in twenty-five cases difficult of classification according to accepted criteria, early examination of the spinal fluid did not aid directly in the establishment or the elimination of the diagnosis of poliomyelitis. By this the authors do not wish to imply that spinal fluid examinations are without value in the diagnosis of the disease but rather to emphasize that in their opinion poliomyelitis occurs without alterations in the spinal fluid. It should be mentioned that, from their material, it would have been possible to add to the group presented several additional cases differing in no essential respect but with the early lumbar puncture yielding spinal fluid with from 8 to 12 cells or with fewer cells and a positive Pandy test. Thus every gradation by routine test was found to exist between normal and pathologic spinal fluid, obtained by early lumbar puncture in poliomyelitis.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Disease in Childhood, London

- *Patent Ductus Arteriosus 7 291 341 (Dec) 1932
Obesity After Chorea A. M. Muir and J. W. Brown—p. 291
Otitis Media as Etiologic Factor in Gastro-Enteritis I. Findlay—
p. 307
*Osseous Dystrophy Following Icterus Gravis Neonatorum Frances
Braid—p. 313
Rickets Following an Attack of Acute Nephritis L. A. Cockayne and
I. P. L. Jander—p. 321
Observations on Dysentery in Children D. Navarro and A. G. Signy
Ovarian Sarcoma in Children R. Gittins and J. C. Hawksley—p. 335

Patent Ductus Arteriosus—Muir and Brown present twenty cases in which clinical and roentgenologic examination suggested a diagnosis of a patent ductus arteriosus. They consider a combination of any three of the following signs as adequate for a diagnosis: 1. The presence of a continuous or machinery bruit in the second left space. 2. The presence of a long rough systolic bruit with maximum intensity in the second left interspace, with conservation, accentuation or reduplication of the pulmonary second sound. 3. Gerhard's ribbitt dulness. 4. Roentgenologic evidence of dilatation of the trunk of the pulmonary artery. 5. The comparative absence of symptoms. No direct relationship can be established between the presence of a machinery murmur and thrill, or between any degree of dilatation of the pulmonary artery and a machinery bruit. In cases that exhibit Gerhard's dulness, roentgenologic confirmation is always forthcoming. Roentgen examination has a definite value in the differentiation of this condition from some other forms of heart disease in children. Of the twenty patients in the authors' series, seven are males and thirteen are females. The youngest is 5 and the oldest 21. Fifteen of the patients learned of the existence of a cardiac lesion at the routine school examination, and five had the lesion discovered during the course of some infectious disease.

Osseous Dystrophy Following Icterus Gravis Neonatorum—Braid reports a case of osseous dystrophy following icterus gravis neonatorum in a boy who became jaundiced on the second day after birth and whose condition did not arouse anxiety until the tenth day, when he bled profusely from the mouth and umbilicus. A single dose (5 cc) of whole blood, given intramuscularly, caused prompt arrest of the bleeding, but, for the next three weeks, his condition remained critical. The jaundice was apparently stationary, and the stools were consistently colorless. Repeated chemical tests for bile salts and bile pigment in the stools were negative. The liver and the spleen were not appreciably enlarged. At 4 weeks, his weight fell to 2 pounds less than that at birth. Then a gradual improvement set in, and the stools began to assume a normal color. A month after birth, bile pigment was present in the feces but bile salts were still absent. He was entirely breast fed and was discharged at the age of 7 weeks. About a year later he appeared to be well, apart from a certain degree of secondary anemia. He was bright and active in his movements, his mental development was up to normal standard, and there was no lesion of his central nervous system. The only complaint was that he was unsteady on his feet. Roentgen examination revealed a cystic condition of the shafts of all the long bones. While he was kept at rest, deformity of the limbs remained slight, but since he has been allowed to sit up, he has developed a kyphosis and a certain degree of forward curvature of the sternum. Various treatments have been tried: ultraviolet radiation, viosterol, thymus extract and raw thymus and various liver preparations. Throughout, a suitable diet and additional salts were given. No treatment has had any effect and the chief practical consideration has been the prevention of deformity. The author's experimental work on jaundiced dogs produced similar bone changes. He has made a comparison between the bone and nerve changes in rickets and the bone and nerve changes following icterus gravis neonatorum, and he suggests that the liver not only stores vitamins but controls their distribution and activities in normal conditions. This function may be impaired or destroyed in prolonged jaundice, and, as of nervous tissue may ensue.

Bristol Medico-Chirurgical Journal

- Long Fox Memorial Lecture The Problem of Deafness Delivered at University of Bristol on Oct. 25, 1932 A. J. M. Wright—p. 255
Prognosis in Coronary Thrombosis C. F. Coombs—p. 277
Effects of Lightning, with Especial Reference to Nervous System M. Critchley—p. 285
Care and Management of Premature Infants F. J. Hector—p. 301
Note on Case of Pontocerebellar Tumor in Girl of Six Years A. Wilfrid Adams—p. 309
Provincial Medical Journals J. A. Nixon—p. 311

British Journal of Experimental Pathology, London

- 13 467 510 (Dec) 1932
Propagation of Fujinami Fowl Myxosarcoma in Adult Ducks W. J. Purdy—p. 467
Effect of Tumor Regression and Tissue Absorption on Some Properties of Serum A. M. Begg and H. A. Aitken—p. 479
Use of Equivalent Proportions of Antigen and Serum in Absorption of Precipitin J. T. Duncan—p. 489
Relation of Optimal Agglutination to Equivalent Serum Suspension Ratio J. T. Duncan—p. 498
Study of Phosphorus Distribution in Bacterial Cultures Part III Phosphatase Activity of B. Coli and Staphylococcus J. Gordon and A. E. Cooper—p. 503

British Medical Journal, London

- 2 1043 1088 (Dec 10) 1932
Relation of Physiology to Medicine, in Research and Education H. Dale. —p. 1043
T. Lewis—p. 1046
*Observations on Hematopoietic Hormone (Addison) in Pernicious Anemia R. S. Morris, L. Schiff, J. H. Foulger, M. L. Rich and J. E. Sherman—p. 1050
Ambulatory Distraction Splint for Leg Fractures E. Robert—p. 1051
Problem of Lymphoid Tissue J. M. Yoffey—p. 1052
*Treatment of Chorea by Baths W. S. C. Copeman—p. 1054
*Gastro Ileac Reflex in Chronic Appendicitis A. B. MacLean—p. 1055

Hematopoietic Hormone in Pernicious Anemia—The chief points to which Morris and his associates wish to draw attention in the treatment of pernicious anemia with liver and liver extracts are (1) the small volume of material injected (2) the prolonged and sustained reticulocytosis (duration thirty-four days), (3) the maturation of the red cells which eventually took place, and (4) the fact that a single injection produced such a sustained response. Technical difficulties are being encountered in the concentration of swine juice, but in time it is felt that these can be overcome so that material may be available for extensive clinical trial. Their results with human gastric juice have been confirmed by Conner and by Zervas. The authors believe that the absence of Addison in the gastric juice in pernicious anemia is the cause for the reversion to a megaloblastic marrow in this disease. The lack of a satisfactory test for the presence of Addison in concentrated gastric juice, save its injection into a patient with pernicious anemia, is a handicap, as it has been in the case of liver extract and biologically and chemically to try to overcome this difficulty. The observations they have made up to the present time indicate the probability that Addison is the physiologic hormone which maintains the normal state of the blood in health. They have under investigation the therapeutic effect of intramuscular injections of Addison in secondary anemias.

Treatment of Chorea by Baths—Copeman treated a series of forty-four cases of chorea in children under 15 by means of somewhat prolonged immersion in baths at "neutral" temperatures, and general (light) massage. A small control series was treated on orthodox lines. He found that the same result was ultimately achieved in the two groups. The bath group took longer, but the ultimate incidence of relapses proved lower than in the control group. It is probable that a combination of the two methods with ordinary drug therapy would prove a more successful measure than either separately. This could be easily adopted in the hospital, since no special apparatus—other than an ordinary air ring or a canvas bath top cover to fit the ward bath—is necessary. The patients were placed in the ward baths for a period of from one to one and a half hours in the morning and again in the afternoon. The bath was filled with tap water at skin temperature and kept at this point throughout by partial refilling at intervals. Each child had an air ring placed round his neck, which enabled him to lie back in the bath and relax without fear of his head becoming

ing submerged In bad cases, when the danger would still be present, a canvas cover was fitted over the bath, and the head emerged through a hole After the bath the child was put to bed for an hour, and then light skin massage (sedative) was given to the limbs and back for twenty minutes Children with heart disease were also treated in this way but were conveyed on a trolley and lifted in and out of the bath

Gastro-Ileac Reflex in Chronic Appendicitis—MacLean examined roentgenologically 300 cases of chronic appendicitis and operated in 40 He elicited the gastro-ileac reflex by giving ordinary food, such as soup and fish or tea and biscuits, four hours after the barium meal, and noting the amount of barium in the colon one hour later Five hours after taking the barium it will normally be found that practically all the barium has entered the cecum and colon, a few inches of the ileum showing in some cases only At this stage the head of the meal will have reached the hepatic flexure or will be just beyond the flexure. In about 50 per cent of cases, chronic appendicitis causes delay in the filling of the colon Delay in the filling of the cecum under such conditions can be regarded as a sign of chronic appendicitis

East African Medical Journal, Nairobi

9: 245 273 (Dec.) 1932

Medical Assistance to Natives with Especial Reference to Belgian Congo R Mouchet—p 246
Clinical Study of Pneumonia Among Africans in Nairobi H C Trowell—p 258
Neurosyphilis in a Native Case. H L. Gordon—p 269

Edinburgh Medical Journal

39 697 762 (Dec.) 1932

Peripheral Neuritis Morison Lectures 1932 Delivered Before the Royal College of Physicians of Edinburgh May 1932 J Collier—p 697
*Malignant Disease of Breast Statistical Survey of One Thousand Case Records L B Wevill—p 714

Malignant Disease of Breast—From a statistical survey of 1 000 case records of malignant disease of the breast, Wevill draws the following conclusions 1 The average age of patients with carcinoma of the breast is 53, but compared with the normal population the highest percentage is drawn from women aged 59 2 This disease occurs with equal frequency in either breast 3 It occurs rather more commonly in unmarried than in married women 4 The first indication of the disease in by far the greater majority of patients is the development of a lump in the breast 5 The average duration of the lump before the patients present themselves for treatment is about fourteen months There is nothing to suggest that patients seek advice any earlier at any particular age period or that they are presenting themselves any earlier for treatment now than previously 6 There is no evidence to show that the duration for which the lump has been present is of a definite prognostic importance 7 Pain as a diagnostic feature in malignant disease is of singularly little use and in most cases occurs after the development of the lump 8 The commonest situation in which carcinoma occurs is the upper lateral quadrant of the breast Next in frequency is the centrally placed growth deep to the nipple 9 In an unduly large number of patients the disease is already well established by the time they present themselves for treatment The growth has become fixed and in many cases the skin is already involved 10 The commonest change in the nipple is retraction It is of frequent occurrence, whereas discharge from the nipple or ulceration is much less common 11 A true diagnosis as to the state of the lymph nodes can be made only by a careful histologic examination and the appearance at operation may be misleading When such a microscopic examination is carried out the majority of cases already show involvement of the lymph nodes 12 Family history does not appear to be of any significance in regard to the subsequent development of carcinoma 13 The average mortality from radical excision of the breast in a large series of unselected cases is approximately 4 per cent 14 The majority of recurrences that take place do so within three years from the date of operation and in a series of unselected cases a ratio of cure of approximately 50 per cent is all that can be hoped for 15 Recurrence takes place most often, to start with at any rate in the neighborhood of the original operation The next commonest site is the median sternum and after that the abdominal bone are less commonly affected, but the vertebral column seems to be the site of election in bone lesions

Irish Journal of Medical Science, Dublin

No 84: 679 726 (Dec.) 1932

Spontaneous and Traumatic Detachment of Retina and Its Modern Treatment C Goulden—p 679
Leprosy with Especial Reference to Its Pathology R E Cochrane—p 693
Experimental Medicine T W T Dillon—p 703

Journal of Laryngology and Otology, Edinburgh

47 797-889 (Dec.) 1932

*Influence of Septic Infection of Sphenoidal Sinus on Cerebral Blood Supply F A Pickworth—p 797
Nasal Accessory Sinuses Some Recollections and Reflections H Tilley—p 808

Septic Infection of Sphenoidal Sinus—On the basis of original observations as well as of a review of the literature, Pickworth believes that the most important cause of dysfunction of the brain is to be found in the disturbance of its blood supply Diffusion of soluble toxins from an infected part to contiguous structures is reasonably certain In a series of postmortem examinations, examples were given illustrating the association of diseased sphenoidal sinuses with pathologic changes of the internal carotid artery The author further believes that not only diffusible toxic substances but also actual organisms from a sphenoidal sinus infection may spread centrifugally and so involve the perivascular tissues of the carotid artery In microscopic sections of the sphenoid bone of a man who died of Huntington's chorea with homicidal mania, gram-positive streptococci were found The author believes that organisms occasionally find their way into the perivascular tissues of the smaller brain arteries, where they disintegrate and cause local pathologic changes, such as atherosclerosis The subacute infection occurs most probably by way of retrograde thrombosis of the veins Finally, the author believes that brain changes may be caused by constriction of cerebral arteries resulting from irritation of the sympathetic nervous system Nasopharyngeal sepsis may involve either the nasal ganglion or the cerebral branches arising from the main sympathetic trunk in the neck

Journal of Physiology, London

76: 283 394 (Nov 5) 1932

Studies Concerning Alimentary Absorption of Water and Tissue Hydration in Relation to Diuresis H Heller and F H Smirk—p 283
Antigrowth Principle Derived from Parathyroid Gland M H B Robinson and J H Thompson—p 303
Effect of Parathyroid Hormone and Irradiated Ergosterol on Calcium and Phosphorus Metabolism in Rat L I Pugsley—p 315
Inorganic Sulphate Excretion by Human Kidney C L Cope—p 329
Study of Influence of Adrenalin on Systemic Blood Flow H Barcroft—p 339
Action of Histamine on Respiratory Tract D Epstein—p 347
Chloride Secreting Cells in Gills of Fishes with Especial Reference to Common Eel A Keys and E N Willmer—p 368
Diuretic Action of Alcohol and Its Relation to Pituitrin Margaret M Murray—p 379
Behavior of Liver Glycogen in Experimental Animals III Relationship or Blood Phosphorus to Liver Glycogen and Blood Glucose in Decapitate Cat A C de Graff C L Evans and T Vacek—p 387

Lancet, London

2 1259 1316 (Dec. 10) 1932

Autonomic Nervous System W R Hess—p 1259
Intravenous Vaccines of Hemolytic Streptococci in Acute Rheumatism in Childhood W R F Collis and W Sheldon—p 1261
Anemia Following Gastric Operations Janet M Vaughan—p 1264
Prostatectomy with Immediate Closure of Bladder C A Wells—p 1268
A Method of Estimating Fat Absorption in Celiac Disease C E Kellert—p 1270

Anemia Following Gastric Operations—In a review of the literature Vaughan found that only 122 cases of anemia following gastric operations have been reported in detail, apart from her three cases of hypochromic microcytic anemia and that the available evidence is insufficient to allow the conclusion to be drawn that such operations are necessarily followed by disordered hematopoiesis It is possible that a hematologic and statistical study of a large series of cases might show that at least slight degrees of anemia are more common than appears from a study of the existing material, since Gordon-Taylor draws attention to the fact that in the majority of cases anemia is present without giving rise to any symptoms Again there are not sufficient data available to suggest in the case of

partial gastrectomy, that one method of operative technic is more likely to be followed by anemia than another. Lublin found anemia more commonly in those cases in which the technic of the second operation of Billroth was employed and the pylorus was closed, and considers some modification of the first Billroth operation safer. Morley also favors a modification of the first method of Billroth. That the anemia in the reported cases is dependent on the disordered gastric function due to operative intervention and is not merely incidental is suggested by the fact that a definite proportion of the cases of hypochromic anemia occurs in men. Idiopathic microcytic anemia in man is so rare as to be described as a hematologic curiosity. There is little evidence of the precise nature of the disturbance of gastro-intestinal function. Achlorhydria does not necessarily result. Lublin, Morel and Gordon-Taylor found normal acidity or hyperacidity in a certain proportion of cases even when severe anemia was present. Lublin reports that more than half of his total ninety-eight patients had stools of altered form and consistency. Both he and Gordon-Taylor comment on the increase in fecal fat. It has not proved possible to correlate the occurrence of anemia with any specific changes in the feces. It is interesting, however, that other conditions characterized by faulty fat digestion or absorption are frequently associated with anemia. Changes in the gastro-intestinal function result from operative intervention on the stomach, but their relation to hematopoiesis cannot yet be determined. The results of treatment with liver or iron, according to the type of anemia present, are satisfactory.

Medical Journal of Australia, Sydney

2 707 734 (Dec. 10) 1932

The Halford Oration J. Barrett—p. 707

Observations on Movement of Cells in Vitro with Reference to Tumor Immunity W. Moppett—p. 718

Effect of Roentgen Rays on Blood and Spleen of White Mice Preliminary Investigation G. Bourne—p. 722

Tubercle, London

14 49 96 (Nov.) 1932

*Adhesion Cutting, with Especial Reference to Uses and Limitations of Diathermy and Use of Separate or Combined Endoscope and Operating Instrument F. G. Chandler—p. 49

Activity in Pulmonary Tuberculosis as Determined by Comparative Study of Roentgenograms, Blood Sedimentation and Leukocytic Reactions J. Duffy—p. 60

Adhesion Cutting—Chandler points out that whereas hemorrhage is not common with the electrocautery used at a dull red heat, it is difficult or impossible to control it by this means if severe. Diathermy is, in his opinion, the best method of preventing hemorrhage, and for stopping it. For Maurer's enucleating method, which is probably the best technic of all, diathermy is essential. With a suitable machine, adhesions can be both coagulated and cut by the diathermy current. The machine must be so designed that an adequate cutting current is produced which will enable the wire electrode to cut cleanly, like a knife, without sticking. The author's combined diathermy instrument combines the telescope and coagulating electrode and cutting wire in one, but the illumination is not too good and the field of vision is limited. With a direct vision telescope and anesthetizing needle combined, it is possible to cut by electrocautery or diathermy, through one cannula—a fine electrocautery and a combined diathermy coagulating electrode and cutting wire having been designed to pass alongside the telescope, with this, illumination and field of vision are excellent. In some cases, notably in string, cord and thin, though wide, adhesions, it is easier to cut with the electrocautery than with the diathermy, and in the author's opinion an electrocautery should always be available to supplement the diathermy cutting wire. For the simple cases, one puncture of the chest is all that is needed and, of course, means less manipulation from the patient's point of view and is the best method for beginners. For difficult cases it is better to use two cannulas of equal caliber. Better illumination and perspective can be obtained, and hemorrhage, and in fact the whole operation can more easily be controlled. Moreover, it admits an interchange of operating instrument and telescope, which will often give access to otherwise inaccessible adhesions and allows the use of that invaluable instrument "Maurer's hook." To have right angled, 30 degree and direct vision telescopes is of the utmost value.

Archives des Maladies du Cœur, Paris

25 721 800 (Dec.) 1932

Roentgenologic Study of Beating of Heart and Lower Part of Aorta E. Bordet—p. 721

*Apparently Essential Tachycardia with Incomplete Block of Right Branch of Bundle of His E. Doumer—p. 742

Paroxysmal Tachycardia in Children Case, with Inflammatory Lesions of Specific Tissue and Auricular Myocardium. I. Mahaim—p. 752

Essential Tachycardia—Doumer states that, in certain cases, tachycardia which is attributed to neurotonic influences is in reality of myocardial origin. He reports the case of a man, aged 47, who had developed tachycardia following typhoid which had persisted practically unchanged for fifteen years with a pulse of 100 in decubitus and of 120 upright and at rest. Clinically and roentgenologically there was no evidence whatever of myocardial damage, but the electrocardiogram gave evidence of an incomplete block of the right bundle branch. The author thinks that there can be no doubt that the tachycardia was of myocardial origin, especially since the extraordinary instability which characterizes essential tachycardia was lacking and the hypermotivity and anxiety reactions which accompany that form of tachycardia were also absent. However, the author thinks the mechanism producing the tachycardia in this case was not that by which myocardial lesions usually condition tachycardia, that is, the acceleration of the cardiac rhythm was not compensatory because the myocardial alteration was too limited to affect the energy of the myocardial contraction. He thinks that the tachycardia was due to a reflex stimulation of the rhythmic activity of the sinus by the myocardial alterations, while leaving the sinus susceptible to the ordinary physiologic stimuli which explain the variations of the tachycardia.

Gynécologie et Obstétrique, Paris

26 481 575 (Dec.) 1932

Interstitial Pregnancy J. L. Lapeyre—p. 481

Puerperal Scarlet Fever A. A. Lébedeff—p. 495

*Solution of Sodium Chloride in Treatment of Retention of Gas and Urine Following Laparotomy I. W. Koukolew—p. 506

Pregnancy of Three Months in Patient with Bilocular Uterus with Complete Absence of Cervix P. Guimaraes—p. 512

Retention of Gas and Urine Following Laparotomy—Koukolew recommends the injection of a solution of sodium chloride for the first three days after laparotomy in cases in which there is retention of gas and urine. This therapy causes a reaction characterized by emission of gas, spontaneous micturition, increased muscular tonus and euphoria, the reaction is stronger in asthenic persons than in pyknic ones. This favorable action is the result of introducing salt, fixing water in the organism and obtaining a reaction of the sympathetic nervous system normally accomplished by the exchange of all sorts of matter and by the functions of the secretory organs. The dosage is individual and must take into consideration the results of the blood analysis and the constitution of the woman. For pyknic patients, 10 cc of a 10 per cent solution of sodium chloride may be recommended and for asthenic types, 10 cc of a 5 per cent solution. The injections must not be repeated within less than from two to four hours. The concentration of the solution may be increased to 20 per cent or the quantity increased to 20 cc, but the total dose of sodium chloride given in twenty-four hours should not exceed 11 Gm per kilogram of weight.

Presse Médicale, Paris

41 65 88 (Jan. 14) 1933

Abdominal Hysterectomy Total or Subtotal J. L. Faure—p. 65

Treatment of Chronic Polyarthritides by Surgery of Sympathetic R. Leriche and A. Jung—p. 66

*Encephalomeningeal Syndrome of Neuromelitococcosis L. Rimbaud and M. Janbon—p. 68

Inflammatory Complications of Radium Therapy in Cancer of Cervix of Uterus Technic of Radium Application R. Bernard—p. 71

Vascular Signs in Infantile Kala Azar P. Giraud and R. Poinso—p. 72

Importance of Bile Pigments Obtained in Duodenal Tubage for Diagnosis of Cholecystitis M. Royer—p. 74

Encephalomeningeal Syndrome of Neuromelitococcosis—Rimbaud and Janbon found that the cardinal symptoms of the five cases reported by Rogers as possible late meningeal complications of melitococcosis are the same as those which they observed in two cases of encephalomeningeal disturbances, one of which appeared four years after an attack of melitococcosis.

cocciosis and the other during the course of an infection with *Brucella melitensis*. Some of the symptoms also appeared in cases of other authors. They conclude that there is an encephalomeningeal syndrome of neuromelitococciosis which ordinarily appears late but may appear early, and which is unlike any other known neurologic syndrome. It is characterized by paroxysmal phenomena in the form of paresthesia of the upper extremities, tongue and face, with or without paralysis, dysarthria and aphasia, migraine and visual disturbances, epileptic attacks, and, rarely, abnormal movements. These symptoms may appear singly or together and are accompanied by headache, nausea, vomiting, frequently by fever and occasionally by delirium. The permanent elements of the syndrome are a peculiar mental state, psychic asthenia, indifference, decrease of memory, euphoria, and labyrinthine disturbances, vertigo, tinnitus and deafness. A characteristic neurologic syndrome is lacking except for the frequent appearance of a unilateral or bilateral Babinski reflex. There are no subjective meningeal signs besides headache, nausea and sometimes diplopia, and no objective clinical meningeal signs. The biologic elements of the syndrome are a strong cyto-albuminose reaction of the spinal fluid, with predominant, often severe, hyperalbuminosis, there is frequent xanthochromia. The serum agglutination reaction was positive in one of the two cases in which it was tried.

41 89 112 (Jan 18) 1933

Mode of Formation of Silicotic Nodule. A. Policard—p 89

Antirabic Vaccination and Biotropism. P. Remlinger—p 92

*Treatment of Chronic Febrile Pleurisy with Methylene Antigen. C. Mantoux—p 95

Chronic Febrile Pleurisy—Under the name of chronic febrile pleurisy, Mantoux discusses a syndrome observed only in young women. It consists in slight but persistent undulating fever of menstrual periodicity, and the presence of spots of dry pleurisy localized preferably at the supraspinous or subspinous level or in the interlobular fissures and characterized by fine, dry crepitations and sensitivity to pressure. The syndrome is characterized further by depression, lassitude, loss of weight, absence of a cough or expectoration and a normal roentgenographic image. The author has found that while this disease, in all but two of his cases, was refractory to the usual forms of tuberculous therapy and prolonged itself for from four to five years, it responded readily to Nègre and Boquet's methylic tuberculous antigen. Among eight young girls treated, seven were cured and one was improved. Within a few weeks the pleurisy, fever and fatigue disappeared and there was a gain in weight. The antigen was administered in progressively increasing doses starting with 0.2 cc of the diluted antigen and going up to 1 cc, each dose was repeated twice, then, starting with the undiluted antigen, the same progression was observed. The injections were given subcutaneously twice a week, they were suspended during the menstrual period. They produced no reaction whatever.

Clinica Medica Italiana, Milan

63:1085 1190 (Dec.) 1932

*Clinical and Anatomopathologic Observations of Myocardial Infarct. E. Buccianti and I. Supino—p 1085

Pathology of Capillaries in Chronic Lead Poisoning. A. Fontana and F. Colapinto—p 1109

Influence of Chemical Alterations of Blood Serum on Its Oncotic Pressure. A. Cionini—p 1172

Myocardial Infarct—Buccianti and Supino review the literature on the subject and discuss the clinical, electrocardiographic and anatomopathologic report of a rare case of myocardial infarct with fibrous perforation of the interventricular septum. The patient, a woman aged 70, presented symptoms of cardiac insufficiency and decompensation pronounced edema in the lower limbs as far up as the thighs, pallor, cyanosis of the lips and chest, difficulty in breathing and considerable asthenia. Examination of the heart revealed a blowing murmur which completely replaced the first and second sounds and preceded its maximum intensity over the mitral area, this murmur was not explicable on the basis of valvular lesions but seemed to be due to a marked dilatation of the ventricular cavity and to tearing of the cardiac muscle as found on post-mortem examination. The development of signs of infarct established by electrocardiographic observations during the first days coincided with the detachment of an embolus from the first branch in the descending anterior branch of the left coronary

artery, and the gradually occurring coronary obstruction of arteriosclerotic nature could not in itself cause necrosis with ensuing perforation of the septum because a collateral circulation through anastomosis with the right coronary artery was established. The modifications of the cardiac rhythm, such as nodal rhythm and atrioventricular dissociation, were not explained by anatomic alterations of the sino node or the node of Aschoff and Tawara. The integrity of these centers proves that the alterations of the cardiac rhythm were of a purely functional character, and this is confirmed by the successive electrocardiogram taken during the course of the disease, in which the dissociation between the auricles and the ventricles was no longer observable. The electrocardiographic characteristics of the T wave (rounded wave, coronary wave, distinctly negative T wave in the three leads) represented the usual sequence of myocardial infarct and confirmed the evolution of the electrocardiographic signs caused by the infarct itself. The author considers the fibrous perforation of the septum an epiphenomenon of the embolic infarct. Its particular anatomic disposition showed that it could not have brought a notable disturbance into the circulatory mechanism, even from the symptomatologic side the blowing murmur did not vary in its characteristics. The clinical signs presented by the patient in the deteriorating course of her disease, intense dyspnea and retching, did not coincide with the perforation, which in all probability preceded it. These signs were due to the absolute insufficiency of the heart, the result of myocardial sclerosis. The author states that the deterioration was the result of cardiac hyposystole, hypothetically associated with the establishment of an aneurysm at the apex, the altered circulatory mechanism, general stasis and pronounced anasarca contributed toward rendering the cardiac insufficiency irreparable and leading to death. The author concludes that this case is important not only because of its clinical and electrocardiographic value but also because it belongs to those rare cases of myocardial infarction with insignificant beginning but with sudden manifestation of irreparable cardiac insufficiency, the recognition of this phenomenon is now made possible by electrocardiographic examination.

Dermatologische Wochenschrift, Leipzig

98:1-44 (Jan 7) 1933 Partial Index

*Melanosarcoma with Multiple Metastases. Also in Oral Mucous Membrane. J. E. van der Kaaden—p 1

*Atypical Gnat Bite Reactions (Culicosis Bullosa). H. G. Bode—p 7

Dermatomyositis. E. Bender—p 13

Melanosarcoma with Unusual Metastasis—The clinical history of a patient with multiple melanosarcoma is reported by van der Kaaden especially on account of the unusual location of one of the metastases. The patient, a man aged 44, had been well until 1930. Then a nodular growth developed on the posterior portion of the thigh and was removed by the patient's physician. A new growth developed a short time after the excision, soon it reached the size of an apple and the inguinal lymph nodes on the left side became swollen. Both the growth and the lymph nodes were surgically removed and the histologic examination of the tumor revealed it to be a melanosarcoma. In spite of the fact that the operation was followed by irradiation with radium and roentgen rays, a new relapse could not be prevented. The most unusual of the metastases was a soft, pedicled nodule, the size of a cherry, in the left side of the mouth at the edge of the lower jaw. The author thinks that this localization of a melanosarcoma has not been reported heretofore. In discussing the treatment of melanosarcoma he warns against the use of the knife. He considers electrotomy, with a wide coagulation zone far into the healthy tissue, the best treatment of primary melanosarcoma.

Atypical Gnat-Bite Reactions—Bode describes a bullous skin disorder that so far has been observed only in women. It appears on the uncovered or on the lightly covered portions of the body on the face, the hands and especially the legs. Isolated round blisters develop on the otherwise unchanged skin. They have a serous content and reach full size (sometimes nearly the size of a walnut) within twenty-four hours. The surrounding skin shows no inflammatory reactions, unless the content of the blisters becomes turbid by secondary infection and a narrow red halo results. The eruption develops only in the summer months, and this, together with the observation that only the uncovered or the lightly covered parts of

the body become affected, makes it appear likely that gnat bites are the cause. This opinion has been expressed by the French author Genner and recently also by Siemens in Holland. In accordance with this etiology, Siemens designated the condition as *culicosis bullosa*. The clinical histories described by the author are those of two sisters who developed the eruption during the last three summers. The anamnesis revealed that they had been exposed to gnat bites. Because the author thought it probable that this reaction was a manifestation of hypersensitivity to gnat bites, he made cutaneous tests with extracts from *Culex pipiens* and obtained positive results in one of his patients.

Deutsche medizinische Wochenschrift, Leipzig

- 59 39 78 (Jan 13) 1933 Partial Index
 *Stimulation Substances W. Heubner—p 39
 *Treatment of Poliomyelitis with Blood Transfusions from Convalescents Schottmüller—p 43
 Significance of Anacidity of Stomach and of Sufficient Substitution Therapy G. von Bergmann—p 44
 Experimental Investigations on Causes of Haff Disease Bürgers, Bachmann and Hettele—p 53
 Experiences in Treatment of Chronic Encephalitis U. Fleck—p 55
 Differential Diagnosis of Rightward Displacement of Heart During Nursing Age Alice Ieffkowitz—p 57
 Movement Behavior of Workminded Children H. P. Kuttner—p 58
 Development of Social Service of Hospitals from Its Beginning to Present Time Elisabeth Rinnberg—p 60

blood stream temporarily, yet this does not justify the designation of the condition as sepsis. The diagnosis of sepsis is permissible only if the invasion advances unchecked and leads to severe systemic disease with symptoms in distant organs which do not belong to the typical aspects of the primary infectious disease. In some instances it is of course difficult to draw the line. The chronic forms of sepsis are frequently characterized by symptoms such as a large tumor of the spleen and swelling of the liver. In discussing the symptomatology of sepsis, the author describes the aspects of otogenic, stomatogenic, puerperal, enterogenic and urinary forms of sepsis and shows that sepsis may also originate in the bone marrow, in the endocardium and in the lungs. Concluding, he states that a completely developed sepsis is a condition that is produced when, in the combat between an infectious process and the immunization powers of the organism, the infection proves the stronger and a generalized infection of the organism sets in. However, there are also abortive forms of sepsis, in which the line cannot be drawn between typical infectious diseases and sepsis. Two factors are essential for sepsis: the infection and the permanent or temporary insufficiency of the reticulo-endothelial system.

Treatment of Scars and Keloids—According to Stein,

cicatricial changes of the skin are the result of destruction of the papillary layer. Cicatrices may occur in various forms. The least noticeable, or smooth ones, are even with the surface of the skin and become manifest either by hyperpigmentation or by depigmentation. The mildest preparations that have long been in use to counteract superficial hyperpigmentation are aqueous solutions of sodium borate or solutions of corrosive mercuric chloride. Other bleaching agents mentioned by the author are a bismuth ointment, weak acids and hydrogen dioxide preparations. Depigmented, whitish scars can be covered up with a suitable cosmetic or can be colored to harmonize with the other portions of the skin by application of fluids, such as a solution of potassium permanganate. If the skin becomes too dark by the application of this substance, it can be made lighter by the use of an aqueous solution of oxalic acid. The following method frequently proves helpful when the depigmented scars are still new. The area around the scar is covered with adhesive plaster and after an alcoholic solution of oil of bergamot has been rubbed on the whitish scar, quartz lamp radiation is applied. Cicatrices that are not level with the surrounding skin should be softened and smoothed out. Into this group belong particularly the scars resulting from acne vulgaris, acne varioliformis and variola. Softening can be effected by the pepsin poultices recommended by Unna. Kromayer overcomes slight differences in the level by grinding them off. The scars of variola and acne can also be treated with repeated scarifications or by application of carbon dioxide snow. The latter should be employed so that there is no scab formation but only peeling. The author found diathermy effective in cases of this type. Scars that adhere to the underlying tissues can be mobilized by injections into the rigid tissues, or Extensive scars may develop into tumor-like formations. These so-called cicatricial keloids are best influenced by irradiation. The author recommends unfiltered rays for new, still soft keloids and filtered rays for the older, deep seated keloids. The surrounding areas should always be covered.

Klinische Wochenschrift, Berlin

- 12 49 88 (Jan 14) 1933 Partial Index
 Chemical Activity of Normal Liver for Processes of Intermediate Metabolism S. J. Thannhauser—p 49
 Bromine in Blood During Psychoses H. Zondek and A. Bier—p 55
 Pathologic Physiology of Phosphatide Fatty Degeneration of Cells in Lipoid Histocytosis (Niemann Pick Disease) E. Epstein—p 56
 *Evaluation of Functional Tests of Liver at Bedside E. Zadek, A. Tietze and K. Gehert—p 60
 *Role of Staphylococci in Pathogenesis of Secondary Urinary Calculi T. Hrynischak—p 63
 Constitutional Factors in Tuberculosis of Children K. Klare—p 65
 *Significance of Flocculation Reactions for Diagnosis of Neurosyphilis H. Scheller—p 67

Functional Tests of Liver at Bedside—Zadek and his associates investigated the clinical diagnostic significance of the functional tests of the liver on fifty-four patients with diseases of the liver and on twenty-eight persons without hepatic disorders. The galactose tolerance test gave positive results in only 50 per cent of the patients with parenchymal

Die Ärztliche Praxis, Vienna

- 7 132 (Jan 15) 1933
 Measurement of Blood Pressure and Its Significance for Diagnosis and Therapy J. Pal—p 1
 *Etiology and Symptomatology of Sepsis W. Falta—p 5
 Indications for Exploratory Laparotomy J. Schnitzler—p 7
 Relations Between Hypophysis and Female Genitalia H. Heller—p 9
 *Treatment of Scars and Keloids R. O. Stein—p 12
 Prevention of Transmission of Tuberculosis of Cattle and Hogs to Human Beings K. Diernhofer—p 14

Etiology and Symptomatology of Sepsis—Falta shows

that from the standpoint of the clinician it is important that sepsis develops in two different forms (1) the nonmetastasizing form, which is septicemia or sepsis in the restricted sense of the word, and (2) the metastasizing form, in the course of which metastatic abscess formation takes place in the various organs, this is pyemia in the older sense of the word. The author further discusses Schottmüller's theory of cryptogenic sepsis, but he thinks that the assumption of a septic focus, from which infectious agents enter the blood stream again and again, does not solve the sepsis problem completely. He points out that in the various infectious diseases bacteria enter the

disturbances, on the other hand, it did give a positive reaction in one patient without hepatic disturbances. The Takata reaction, first devised as a test for the cerebrospinal fluid but later adapted as a functional test of the liver, gave somewhat more exact results than did the galactose test. Of the reactions for the excretory function of the liver, the bromsulphalein test and the bilirubin tolerance test were tried. The latter, without the aid of other functional tests and without clinical signs, never gave indications of a disturbed hepatic function. Initial insulin hyperglycemia, recommended by Bürger as a functional test of the liver, likewise was found to be unreliable. In summing up their experiences with the functional tests, the authors state that they were not an aid to a more reliable and a more rapid diagnosis than are the customary clinical methods. They maintain that clinical observations and anamnesis, palpation, hepatic fetor, examination of blood and urine, including the aldehyde reaction and the determination of amino-aciduria, are still more reliable in determining the function of the liver than are other methods that may have a theoretical interest but are unreliable, time consuming, expensive and unpleasant for the patient.

Staphylococci in Pathogenesis of Secondary Urinary Calculi—According to Hryntschak, concrements of the urinary passages are the result of a disparity between the colloid protection in the urine and the quantity of the crystalloids in the supersaturated solution. The colloids may either be diminished or changed, or there may develop colloidal substances that are foreign to the urine and that have an especial adsorption capacity for crystalloid substances. In the case of the crystalloid substances, the quantity present in the urine and especially the hydrogen ion concentration of the urine are partly determinative. All this shows that the process of the formation of a concrement is a complex one and for this reason a single change in the urine is not sufficient, but it is necessary that several causal factors concur. In the course of studies on the causes of concrement formation the author found it advisable to differentiate between the primary concrements that develop in noninfected urines and the secondary concrements that result from urinary infection. The author's material is comparatively small and does not permit general conclusions but he thinks that a staphylococcal infection of the urine and symptoms that indicate a renal disturbance make a secondary calculus probable. To illustrate the role of staphylococci in the development of calculi, he gives short reports of four cases. He also tried to demonstrate in animal experiments that a staphylococcal urinary infection has an influence on the development of secondary renal calculi. Injection of staphylococci into rabbits, in which a slight stenosis of the left ureter had been produced resulted in the development of renal gravel in a comparatively high percentage of the animals. Microscopy revealed that the gravel consisted of refracting spheruliths and chemical analysis showed that it consisted of calcium phosphate and carbonate. In animals that were treated with other bacteria gravel formation was never observed and in twelve control animals only one case of gravel formation was noted. In his conclusion the author points out that a hematogenic coccic infection of the urine may lead to the formation of the nucleus of a calculus but of course only when a number of other predispositional factors are present among these the type of coccus the condition of the urine and of the urinary organs and the frequency of bacterial invasion are important.

Flocculation Reactions in Diagnosis of Neurosyphilis—On the basis of his observations Scheller maintains that the Kahn reaction and the Muller conglobation reaction are, in regard to their final results equivalent reactions. The clarification reaction is somewhat inferior but still surpasses the Wassermann reaction. It is advisable to perform several flocculation tests simultaneously because this is the only means by which nonspecific results and technical mistakes can be excluded. It thus is not possible the Kahn reaction should be done because it has the advantages of greatest exactness comparatively simple technique and rapidity. The Kahn reaction proved so valuable in tests on 10,000 serums and on 6,000 cerebrospinal fluids that the author would not dispense with it. He admits that the Muller conglobation reaction II is just as exact as the Kahn reaction but its technique is more complicated. The Muller clarification reaction is simple and reliable but compared to the Kahn reaction it has the disadvantage that the reaction cannot be read until the following day. The diagnostic

significance of flocculation reactions becomes evident in disorders of syphilitic origin in which the Wassermann reaction is frequently negative, as in cerebrospinal syphilis and in tabes. Another advantage lies in the fact that, in polyclinics and in hospitals for internal diseases, the diagnostically indispensable spinal puncture will be made sooner if the blood tests indicate a former syphilis. Thus the patient with incipient or symptomless neurosyphilis will receive treatment sooner than was formerly the case. However, the author admits that he does not know to what extent the positive outcome of these sensitive reactions can be made the criterion of therapeutic requirements or of therapeutic efficacy in neurosyphilis.

Medizinische Klinik, Berlin

29 73 106 (Jan 13) 1933 Partial Index

- *Hemolytic Icterus J Meinertz—p 73
- *Functional Pathology and Therapy of Diabetes C von Noorden—p 78
- *Occurrence of Basophil Stippled Erythrocytes in Course of Contracted Kidney S Litzner—p 81
- *Poisoning with Acetylsalicylic Acid with Secondary Impairment of Cardiac Muscle W Mann—p 85
- Present Status of Serotherapy of Diphtheria F von Bormann—p 87
- Value and Technique of One or Several Flocculation Methods as Supplement to Wassermann Reaction G Blumenthal—p 89

Hemolytic Icterus—Meinertz shows that the symptomatology of icterus varies widely. Some persons with icterus have no yellow discoloration of the skin and do not feel ill, consequently, some authors prefer the term hemolytic anemia. This is not satisfactory, since anemia may also be absent, moreover, the term is not specific enough, because numerous disorders may cause increased hemolysis. The term familial hemolytic anemia would be better, but the disorder is not always familial, yet the author admits that the familial or the hereditary form presents a well defined symptomatology. On the basis of two case reports he discusses the main symptoms, particularly the increased bilirubin content of the blood, the reduced resistance of the erythrocytes and the role of the spleen. He concludes by calling attention to certain similarities between hemolytic icterus and pernicious anemia.

Basophil Stippling in Contracted Kidney—Litzner observed stippled cells in six out of eight patients with secondary or with genuine (arteriosclerotic) contracted kidney. He states that lead poisoning could be excluded in these cases but that anemia existed and that substances which should be eliminated in the urine were retained in the blood. He thinks that the occurrence of stippled cells is probably partly the result of anemia, since, according to Naegeli and others, stippling may develop in various types of anemia. But in anemia the stippled cells are usually less numerous than they were in these cases of contracted kidney, and the author thinks that the retention of the substances that should be eliminated in the urine particularly the aromatic substances, is probably also a pathogenic factor of stippling. The type of stippling observed by the author in his patients did not differ from that which occurs in lead poisoning. From this he concludes that, if stippled cells can be observed in contracted kidney not caused by lead poisoning stippled erythrocytes can no longer be considered as the pathognomonic symptom of lead poisoning.

Impairment of Cardiac Muscle Following Poisoning with Acetylsalicylic Acid—Mann describes the clinical history of a man, aged 38 who attempted suicide by taking 30 Gm of acetylsalicylic acid. The case is noteworthy because of the development of a circulatory disorder which was not produced as is sometimes the case in poisoning with salicylic acid by failure of the peripheral circulation but by a deficiency of the heart as a result of impairment of the cardiac muscle. The author thinks that the cardiac impairment was produced by two factors salicylic acid and hunger for the patient had been without food for two days at the time he attempted suicide. Hunger reduces the glycogen content of the liver and also produces acidosis. It is assumed that the glycogen deficiency retards the elimination of the salicylic acid and that the action of the poison is prolonged. The clinical significance of this case lies in the fact that it emphasizes the necessity of caution in the use of salicylates and of acetylsalicylic acid. The author points out that recently large doses (up to 15 Gm daily) of sodium salicylate have been recommended for the treatment of acute articular rheumatism. Such large doses can be tolerated only (as is rightly pointed out by the proponents of the treatment) if given together with large amounts of

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JOUR. A. M. A.
MARCH 11, 1933

sodium bicarbonate The action of sodium bicarbonate is not fully understood as yet in this connection it may be effective by accelerating elimination or by preventing acidosis

Munchener medizinische Wochenschrift, Munich

- 2067 2106 (Dec 21) 1932 Partial Index
 *Diagnosis and Differential Diagnosis of Acute Surgical Diseases of Abdomen M Grasmann—p 2071
 Hematopoietic Action of Concentrated Gastric Juice in Pernicious Anemia R S Morris, I Schiff, J Loulger, M L Rich and J E Sherman—p 2074
 Injurious Effects Produced by Medication with Iodine and by Salt Containing Iodine E Herzfeld and A Frieder—p 2075
 Carriers of Hemolytic Streptococci L Wirth—p 2076
 *Glycogen Disease (Hepatomegalia Glycogenetica) von Gierke) L Schall—p 2078
 Numerous Pedicled Tumors and Hornlike Growth in Woman, Aged 82 S Heilbronn—p 2080

Diagnosis of Acute Surgical Diseases of Abdomen—Grasmann shows that the majority of erroneous diagnoses in acute surgical diseases of the abdomen can be avoided by giving attention to the following factors 1 An exact anamnesis should be taken, and all statements of the patient should be given consideration 2 Even in "classic" diseases, not only should attention be given to the local symptoms, but the heart, lungs, kidneys and nervous system likewise should be carefully examined 3 Douglas's culdesac must be systematically examined It is necessary to determine the susceptibility to pressure and pain during movement of the cervix uteri, the condition of the pelvic organs and contents of the culdesac 4 Percussion is of great help for demarcation of the disease focus and has great diagnostic value, particularly in sensitive and obese patients and in appendicitis of the aged and abdominal disorders of children

Glycogen Disease—Schall discusses his observations on three children, aged 8 years, 4 years and 1 year, respectively, who showed the syndrome that von Gierke has designated as hepatomegalia glycogenetica The most important symptom is an enormous enlargement of the liver, noticeable during the earliest period of life The underlying cause of the hepatic enlargement is a glycogen stasis The second cardinal symptom is hypoglycemia without the clinical signs of the hypoglycemic syndrome A third factor is the impossibility of glycogen mobilization by epinephrine Other less constant symptoms are obesity, ketonuria and weakness of the skeletal muscles The disease does not take a rapid course, one case, under the author's observation for almost four years, having remained practically unchanged In spite of the large amounts of glycogen that the organism holds in storage, the low blood sugar content is probably due to carbohydrate hunger of the tissues The author points out that tests made by other investigators seem to indicate that a functional disturbance of the liver diastase is the primary cause of glycogen disease The main object of his report is to call the practitioner's attention to this condition and to stimulate further studies

Wiener klinische Wochenschrift, Vienna

- 46 33 64 (Jan 13) 1933
 Development and Progress of Neurosurgery E Ranzi—p 33
 Microscopic Examination of Vaccinal Reaction on Living Animal M Kaiser and P Vonwiller—p 38
 *Prophylaxis of Occupational Skin Diseases of Photographers L Freund—p 41
 Casuistics and Experimental Pathology of Generalized Blastomycosis E Hammerschlag—p 43
 *New Methods of Examination in Neurology and Their Diagnostic Significance H Hoff—p 47
 Appropriate and Economical Prescription of Medicines A Fröhlich—p 50
 Failure of Circulation as Result of Vascular Spasms Clinical Aspects E Zak—p 51
 Id Pharmacologic Aspects R Rössler—p 52

Occupational Skin Diseases of Photographers—Freund points out that the preparation of negatives and matrices necessitates contact of the hands with the various photographic developers Substances, such as metol, hydroquinone, paraphenylenediamine, diaminophenol hydrochloride, chloroquinone and, to a lesser degree, also rodinal (which contains para-aminophenol), ferrous oxalate and the aqueous solution of corrosive mercuric chloride may cause pernio, erythromelalgia or weeping eczemas Prophylactic measures,

such as the wearing of rubber gloves or covering the fingertips with wax or paraffin or rubbing the hands with a 5 per cent solution of formaldehyde, have not proved satisfactory The stand and tank development that is now often used in roentgenology has likewise disadvantages The author states that his experiences do not corroborate the claim that tank development is more rapid and he asserts that the method produces poor negatives He then describes a method that he devised to prevent contact of the hands with photographic developers Two loops of a flexible material are fastened on one side of the film or on two corners, with the aid of these loops the films can be placed into and taken out of the developing fluids without necessitating contact of the fingers with the films and, with the aid of devices that the author constructed for this method, the procedure is simple and the films can readily be handled in absolute darkness

Methods of Examination in Neurology—Hoff discusses the significance of the various reflexes in the diagnosis of disorders of the central nervous system Certain abnormalities in the position of the head become manifest, for instance, in tumors of the cerebellopontile angle, or in cysts of the corpus callosum or the rhomboid fossa or in tumors of the inferior veriform process of the cerebellum However, it should not be overlooked that abnormal positions of the head may also be caused by pathologic processes in the cervical vertebrae After evaluating the significance of certain reflexes of the eyelids in facial paralysis, the author discusses abnormalities in the posture of the body as a whole, also certain static reflexes of the hands and arms, particularly a tendency to pronation or to supination, and shows their importance in the diagnosis of lesions of the cerebellum Magnus's supporting reaction, the grasping reflex to which Schuster called attention, and certain abnormalities in walking have diagnostic significance in tumors of the frontal lobe A turning of the entire body and of the extremities following a turning of the head may indicate a tumor of the parietal lobe The author further calls attention to pharmacologic tests, because failure to respond to certain pharmacologic preparations indicates lesions of the centers in which the pharmacologic preparation has its point of attack Benedek's percussion of the cranium is helpful in the localization of superficial tumors, and Weisenberg's method of irradiating the cerebellum and the frontal lobe of the cerebrum with short wavelengths, although still in the experimental stage, may eventually prove of great diagnostic value

Zentralblatt für Chirurgie, Leipzig

- 60 65 128 (Jan 14) 1933
 Clinical Contribution to the Question of Disturbance of Bile Excretion K Michajda—p 66
 *Parathyroid Extract—Osteitis Fibrosa—Kidney Stone F Mandl and R Uebelhör—p 68
 Severe Intraperitoneal Bleeding from Corpus Luteum and Paratyphoid H Schranz—p 70
 Extraperitonealization of the Drain for the Protection of Duodenal Stump After Billroth II Operation for Gastric Ulcer F Felsenreich—p 71
 Fixation of Reduced Fragments W Gross—p 75

Parathyroid Extract, Osteitis Fibrosa, Kidney Stone—Mandl claims that he was the first to remove a parathyroid tumor successfully in a case of osteitis fibrosa generalisata (1925) The patient's calcium metabolism returned to normal and his general condition became much improved Subsequently Hellstrom collected from the literature thirty-five cases in which operation was successfully performed At present the literature contains about fifty cases The fact that osteitis fibrosa generalisata could be produced experimentally by administration of parathyroid extract suggested that the disease is caused by hyperfunctioning of the parathyroid glands His first patient had several severe attacks of kidney stone colic Examination of the histories of cases of osteitis fibrosa revealed the frequent incidence of kidney colics, of roentgenologic shadows in the kidneys, or of kidney stones at postmortem examination The occurrence was too frequent to be regarded as a coincidence It suggested that deposition of calcium was a common symptom in osteitis fibrosa Mandl and Uebelhör performed the following experiment Male guinea-pigs were first examined roentgenologically to determine the condition of the bones and the possibility of stones in the kidneys Ten units of parathyroid extract was injected daily for four weeks

In addition, urinary stasis was established by clamping the penis with a rubber clamp for from ten to twelve hours daily. At the end of four weeks the animals were killed and the bodies studied roentgenologically and then dissected. The long tubular bones showed typical early changes of osteitis fibrosa. In three animals the renal pelvis contained a white hard body which on microscopic examination proved to have a crystalline formation. Histologic preparations of renal tissues demonstrated the presence of calcium casts. The conditions described were absent in normal animals. The authors believe that they have thrown some light on the problem of stone formation in human beings.

Zentralblatt für Gynäkologie, Leipzig

57: 65 128 (Jan. 14) 1933

- *Chordotomy to Overcome Unbearable Pains in Uterine Carcinoma M. Henkel—p. 65
- *Resection of Nervus Praesacralis in Gynecology. Indications and Results G. Cotte—p. 72
- *Id. Operative Technic. G. Cotte—p. 77
- Early Stage of Antesacral Chordoma M. Penkert—p. 80
- Immature Ganglioneuroma (Sympathoblastoma) of Small Pelvis E. Fels—p. 89
- *Erythrodermia and Uterine Carcinoma R. Schweigl—p. 94
- Crusade Against Cancer. Enforced Insurance Against Carcinoma of Uterus F. d'Erchia—p. 99
- Histogenesis of Giant Cells in Irradiated Carcinoma of Vaginal Portion of Cervix Uteri G. Huwer—p. 103
- *Observations During Prolonged Irradiations of Gynecologic Carcinomas H. Reichenmiller—p. 105
- Does Possibility of Development of Carcinoma of Stump Justify Rejection of Supravaginal Amputation of Uterus? K. Herold—p. 108
- Is Combined Chemical and Radiation Treatment of Certain Carcinomas Possible? J. Voigt—p. 113
- Permanent Results of Vaginal Radical Operation of Carcinoma of Cervix Uteri According to Schauta Stoeckel W. Shilling—p. 114
- Carcinoma of Perineum H. Goecke—p. 117
- Ulcus Vulvae Acutum S. Leftakis—p. 119

Chordotomy in Uterine Carcinoma.—Henkel points out that in uterine carcinomas the same treatment may produce entirely different results in apparently identical cases. A therapy that effects a cure in one case may not only be without effect but even be the cause of a more rapid spreading in a similar case. A definite prognosis is thus almost impossible, and the author thinks that in every clinic the number of cures of uterine carcinomas is surpassed by those that are inoperable or that have been unsuccessfully irradiated. This state of affairs makes it necessary to improve the palliatives, particularly the measures for counteracting pain. Since morphine is not tolerated by some patients and its analgesic action is only of short duration in others, the author resorted to chordotomy. Simple division of the posterior roots is not sufficient, but the anterolateral columns of the spinal cord must also be divided. The author reports the clinical histories of three cases in which he resorted to this operation. He thinks that chordotomy should be done as soon as it has been determined that the pains are really the result of the carcinoma and are not produced by inflammatory infiltrations in the pelvic tissues. He realizes that in one of the reported cases chordotomy could have been done six months earlier and that the woman could have been saved from much suffering.

Resection of Nervus Praesacralis.—After mentioning different authors who have tried to influence certain pelvic neuralgias and organic disturbances of the uterus and of the adnexa by excluding the sacral portion of the sympathetic, Cotte relates his own experiences with the exclusion of the superior hypogastric plexus. At first he followed for several years Lichner's suggestion and treated such conditions as dysmenorrhea, amenorrhea and neuralgias of the pelvis by bilateral periaxillary sympathectomy, then he conceived the idea of resecting the nervus praesacralis (superior hypogastric plexus). He has performed approximately 200 such resections in the last eight years and has found that it was a valuable palliative measure in inoperable and relapsing carcinomas of the cervix uteri but he considers its curative value of more importance in certain painful conditions especially dysmenorrhea. He has resected the superior hypogastric plexus in 125 patients with dysmenorrhea. Dysmenorrhea was the main reason for resorting to the exclusion of the hypogastric plexus in nine-tenths of the women. In some cases still other disorders existed which could be traced to a disturbance in the hypogastric plexus such as vesical catarrh, leukorrhea and

dyspareunia. Other painful conditions that justify the operation on the sympathetic are vaginismus and certain neuralgias of the pelvis. In regard to the latter it is stated that, before resorting to resection, the surgeon must be positive that the neuralgias are really only pelvic neuralgias and are not caused by anatomic or functional disturbances in the utero-ovarian plexus. But the author has performed the operation on the sympathetic also in vasomotor, sensory and secretory disturbances. He has seen cases of essential leukorrhea and of nervous hydorrhea, and a case of abnormal dryness of the vaginal mucous membrane after hysterectomy, that were cured by resection of the superior hypogastric plexus. He further reports that the resection was effective in cases of dyspareunia, vaginismus, frigidity, nymphomania and pruritus of the vulva or the perineum. Reflex disturbances that originate in the uterus, particularly those of the beginning stage of gestation, and certain trophic disturbances of the genital apparatus could likewise be influenced by means of the resection.

Resection of Nervus Praesacralis. Operative Technic

—In describing the technic of the resection of the superior hypogastric plexus, Cotte discusses the anesthesia, the abdominal incision, the intraperitoneal procedure, the sutures and the postoperative treatment. He generally employs spinal anesthesia because it effects complete relaxation and facilitates the approach to the promontory. He usually makes the abdominal incisions according to Pfannenstiel's method, in order to have the resulting scar in the region of the pubic hair. He uses the median section only in cases in which the pelvic neuralgias result from inoperable carcinoma. In describing the intraperitoneal procedure, he states that, after opening the peritoneum, he generally extirpates the appendix before bringing the patient into the Trendelenburg position. Then, after examining the genitalia, he searches for the nerve, which can be found on the fifth lumbar vertebra, a little above the promontory. After giving several other pointers as to how the nerve is to be localized, particularly in relation to the common iliac artery and to the superior mesenteric vein, the author states that he makes an incision (usually from 4 to 5 cm in length) into the posterior portion of the parietal peritoneum. The superior hypogastric plexus can be found within the connective tissue seen through this incision. It is essential that the entire nerve is reached and not only some of its fibers, and for this reason the bifurcation should be watched for. The author resects from 2 to 4 cm of the nerve, but he admits that a more extensive resection is permissible. Then the posterior portion of the parietal peritoneum is sutured, and in most cases fixation of the ligaments according to Doleris-Gilliam-Pellanda is done. The suture of the abdomen and the postoperative treatment are the same as in other gynecologic operations.

Erythrodermia and Uterine Carcinoma.—Schweigl gives the clinical history of a woman in whom erythrodermia occurred with carcinoma of the vaginal portion of the cervix uteri. The erythrodermia was refractory to all treatments, but it disappeared following radical operation of the carcinoma. The author thinks that this fact deserves special consideration, as it makes it appear probable that an etiologic connection exists between carcinoma and the skin disease.

Prolonged Irradiation of Gynecologic Carcinomas.—Reichenmiller employed prolonged irradiation in advanced carcinomas of the cervix uteri and in extensive recurrences of uterine carcinomas. Nearly all these patients first received radium treatment according to the Paris or Stockholm method. The roentgen irradiation, according to Coutard's method, was instituted four weeks after completion of the radium series. The ray quality was such that 17 mm of copper absorbed one half of the rays. Filtration was done by means of the Thoräus filter. The focal distance was 60 cm. The dosage was measured continuously on the skin of the patient with the aid of a special dosimeter. Thus the entire active dosage, including the reflected irradiation from the tissues, was measured. The minute dose was 4 roentgens (action dosage). The irradiations were given daily alternately on the abdomen and on the back. The abdominal fields received a daily action dosage of 250 roentgens, the back fields a dosage of 200 roentgens. Lead and rubber protectors prevented undesirable scattered irradiation. The irradiations were continued until the desired radio-epidermitis sicca developed, which usually

required about four weeks, or until each field had received an active dosage of from 3,000 to 3,500 roentgens. The reaction became manifest as a slight itching and as a uniform redness and swelling of the irradiated skin, or as thickly strewn, small, light red dots. After several days a superficial, dry exfoliation set in, and a slightly tanned epidermis resulted. By the time the skin reaction set in, the dosage at the carcinoma was from 3,000 to 3,500 roentgens. Cachectic patients did not tolerate this treatment, and consequently the author advises against it in such cases. However, in patients who were in good general condition the treatment was effective and the remnants of carcinoma which were not destroyed by the radium irradiation, disappeared. Diarrhea generally developed as the first sign of the ray reaction, but it subsided without causing loss of weight. Roentgen intoxication and cardiovascular disorders did not occur. A slight lymphopenia often developed toward the end of the irradiation but disappeared again within three months. Together with the skin reaction, colpitis supervened and in some instances led to exfoliation of the vaginal epithelium. The urine had a slight albumin content, owing to changes in the bladder, but after three months most of these changes had disappeared.

Jurnal Po Rannemu Detskomu Vozrastu, Moscow

12 369 428 (Nos 9 10) 1932

Effect of Enteric and Parenteral Diseases of Nourlings on Reticulo-Endothelial System of Gastro-Intestinal Tract. L. A. Shpuro—p 369
*Septic Conditions of the New Born and Their Prevention. V. A. Gok-Smirchek—p 381

Chickenpox in Nourlings. A. V. Troetskiy—p 391

*Symptom Complex and Rational Treatment of Melena Neonatorum. I. A. Shtern—p 396

Septic Conditions of New-Born—Gok-Smirchek reports 87 deaths among 3,750 new-born infants of the obstetric clinic of the Moscow Scientific Institute for the Protection of Motherhood. The premature infants and those weighing below 2,500 Gm contributed 25 per cent of this mortality, infants weighing between 2,500 and 3,000 Gm contributed 173 per cent, while full term infants and those weighing above 3,000 Gm contributed 04 per cent. The causes of mortality in order of their frequency were always considered to be (1) congenital debility, (2) birth injuries, (3) septic infections and (4) syphilis. Postmortem examinations, however, demonstrated that, in the greater number of cases clinically designated congenital debility, death actually resulted from septic conditions. The author isolated a hemolytic streptococcus from the nasopharynx of the new-born in 393 per cent and from both mother and infant in 21 per cent of the cases. Evidently, a number of infants derived the infection from the attendants and the environment. The author concludes that septic infections develop with greatest frequency in premature and congenitally weak infants. The mortality from these conditions was likewise highest in this group. The full term, well developed children more frequently resisted the infection but became carriers. Chilling, poor nutrition and the lack of fresh air and of actinic rays were capable, however, of causing morbidity by reducing their resistance. The most effective measures in combating mortality of the new-born are those directed to prophylaxis. The author advocates for the prenatal stage improvement of the living conditions of the pregnant woman and proper instruction particularly directed against late coitus. The intranatal prophylaxis is summed up in strict asepsis during delivery and at the first toilet of the infant. For postnatal prophylaxis the author advocates properly constructed infants' rooms, sufficient incubation, abundance of light and sunshine, special rooms for the care of children, linoleum covered floors, a separate laundry, and separate disinfecting closets. With the view of eliminating streptococcus carriers, the author insists on systematic examinations of the nasopharyngeal discharges of the attendants and on the isolation of such mothers and infants as are found to be sick or to harbor streptococci.

Melena Neonatorum—From the material of the Moscow obstetric clinic, Shtern reports an incidence of true melena in 15 of 30,627 births. He is inclined toward the theory of toxic origin on the basis of constitutional defect in the vascular tissues, particularly of the capillaries of the gastro-intestinal tract. He found occult blood in feces in 51 per cent of ninety-three normal new-born infants, suggesting occult bleeding from the gastro-intestinal tract. Low hemoglobin and a low erythrocyte count are characteristic of true melena and

differentiate this condition from cases of spurious melena. Coagulability of the blood is only relatively retarded during the course of the disease and returns to normal on recovery. The author treated six patients with injections of placental blood serum, a method suggested by Serdyukov for the treatment of hemorrhage. From 15 to 5 cc of the serum is injected according to the severity of the case. A recurrence of bleeding is treated by a second injection of 5 cc. No untoward symptoms from such injections were observed. Of the six patients treated by this method, only one infant with valvular disease of the heart died. Of nine previous patients treated by calcium and gelatin injections, three died. The rationale of placental serum injections is based on the fact that it exerts a vasoconstrictor effect on the capillaries and contains hormones, particularly epinephrine, and certain serum albumins. The author suggests the prophylactic use of the serum in proper cases. The loss of blood calls at the same time for adequate supply orally or by hypodermic injection of physiologic solution of sodium chloride.

Bibliotek for Læger, Copenhagen

124 415-445 (Dec.) 1932

*Investigations on Mechanism of Albuminuria. J. Bing—p 415

*Studies on Immigration of Dextrose into Red Blood Corpuscles in Man. T. Bjerring—p 425

Fractures of Lower Jaw. O. Bjerrum—p 437

Albuminuria—Bing's investigations confirm the assumption that in albuminuria a filtration of serum proteins occurs through degenerated glomeruli, probably without elimination in the tubuli. The elimination of albumin and globulin is parallel with the filtration, the protein content of the glomerulus filtrate probably being constant in constant blood conditions and changing with changes in the serum proteins. The degree of the glomerulus lesion is also assumed to be significant in the albuminuria.

Immigration of Dextrose into Blood Corpuscles in Man—Bjerring's experiments show that human blood corpuscles under physiologic conditions contain dextrose and that the membrane of the blood corpuscles is permeable to this substance when the corpuscles are in their natural milieu, the plasma. Allowing for the difference between the "rest reduction" of the blood corpuscles and the plasma, the dextrose is under physiologic conditions apportioned between the red blood corpuscles and the plasma according to the laws of diffusion.

Finska Lakaresällskapets Handlingar, Helsingfors

74 849 936 (Nov.) 1932

Treatment of Ureteral Calculi. B. Runeberg—p 849

*Contribution to Knowledge of Gastric Tetany. Observations in Pyloric Stenosis. F. Langenskiöld—p 860

Relation of Living Leukocytes to Iso Agglutination. I. Wallgren—p 891

Current Potential in Circulation and Significance in Pathogenesis of Hypertension. F. Leiri—p 901

Gastric Tetany—Langenskiöld's material consisted of ten cases of certain or suspected stenosis of the pylorus or intestine, including one with gastric tetany, also a case of parathyroid tetany and a case of tetany of pregnancy. He concludes that the total calcium content of the blood does not have the same significance in the pathogenesis of gastric tetany as in the majority of other forms of tetany. The guanidine found in the urine in several instances is thought not to have originated in the alimentary canal but is rather assumed to be a sign of deficient protein metabolism and perhaps to be regarded as a result of tetany or a phenomenon coordinated with the other symptoms of this disturbance.

Svenska Lakaresällskapets Handlingar, Stockholm

58 201 275, 1932

*Studies on Permeability of Retina (Ccn). H. Key—p 201

Polymorphism (Pleomorphism) of Tubercle Virus. E. Hedvall—p 245

Permeability of Retina—Key says that the retina of the eyes of cattle, horses and man, removed immediately or shortly after death, is from the outside inward impermeable to colloids and to many substances dissolved in water, the impermeability continuing for six or seven hours. The retina is permeable to water, at least soon after death. In cases of absolute glaucoma, the retina appears to be permeable to water only from the outside inward. Atropine decreases, and pilocarpine and physostigmine increase, the permeability of the retina from the inside outward.

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL 100, No 11

CHICAGO, ILLINOIS

MARCH 18, 1933

THE USE OF DIGITALIS OTHER THAN IN THE TREATMENT OF CARDIAC DECOMPENSATION

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We of the present generation of physicians are all too apt to discount the medical wisdom of our predecessors instead of realizing that they were keenly wise clinicians who, even though they possessed far fewer instruments of precision and laboratory tests than have we, were critical observers of patients and knew in what we like to call an empirical way much that we have been unable to improve on. One of the difficult tasks of modern medicine has been to find a scientific reason for the action of many therapeutic procedures developed by our medical forebears.

The use of cod liver oil is an excellent example of this. Many generations of clinicians prescribed cod liver oil because they witnessed its efficacy, and they found out what conditions it benefited most strikingly. Many were the theories advanced in explanation of its effectiveness, some of them weirdly complex. Only recently has knowledge of vitamins started investigators on the probably correct explanation of the action of cod liver oil. Fortunate it has been for many patients that physicians continued to use cod liver oil just because observations showed it to be beneficial, instead of saying "Until we know in a scientific way just how it acts, we will not use it."

Somewhat similar conditions have prevailed concerning digitalis. Withering showed the striking effectiveness of digitalis in treating dropsical conditions, although he knew nothing of the mechanism of its action. For many years Withering's wise directions of 1785 in regard to the use of digitalis were disregarded, and for a long period of time after Withering there was an almost complete abandonment of Withering's criteria of the therapeutic use of digitalis. Later such pharmacologic knowledge as had been obtained, instead of improving the clinical use of digitalis, aroused such fear of the toxic actions of digitalis that physicians became afraid to give it to patients in dosage needed to produce adequate therapeutic effects. Then came more complete knowledge of the pharmacology of digitalis and a return to the therapeutic dicta of Withering with an ending of those therapeutic tears that had inhibited us from obtaining good digitalis effects in our patients. Digitalis regained its place of great usefulness in the treatment of cardiac decompensation with later a tendency toward very large dosage from which recently there has been a recession to more moderate dosage

with, in my judgment, a definite improvement in the management of cardiac decompensation.

Our predecessors in the practice of medicine made use of digitalis other than in the treatment of cardiac decompensation. Withering, of course, considered digitalis a diuretic. There has been much discussion as to whether digitalis has any diuretic action apart from its effect in improving renal circulation as part of a general circulation improvement in patients with cardiac insufficiency. Some have denied any direct diuretic effect, while others have claimed that digitalis had a diuretic action apart from any effect on the general circulation. Recent observations in my laboratory by Dr. E. A. Bartram on normal dogs in which digitalis was introduced into the renal artery show that digitalis does cause a diuresis. However, there is no doubt that the clinical efficiency of digitalis as a direct diuretic is slight, while as an indirect diuretic in the presence of cardiac decompensation digitalis often is very effective, and certainly as a diuretic under these conditions it is most useful.

Many of the older practitioners regarded digitalis as a heart "tonic" and gave it in small doses to patients in whom there were no definite signs or symptoms of cardiac decompensation. This use was based either on simple clinical experience with patients or on imperfect knowledge of the pharmacologic action of digitalis. In recent years such utilization of digitalis seems largely to have been discontinued. When I was a medical student, over thirty years ago, I was taught to use digitalis only after signs and symptoms of cardiac insufficiency developed, but not to give it when merely evidences of such pathologic conditions as hypertrophy or murmur were detected. Recent books seem to continue such teaching. As examples of this White¹ says "There are three chief indications for the need of digitalis therapy: (a) congestive heart failure, with or without auricular fibrillation, auricular flutter or heart block, (b) auricular fibrillation or auricular flutter with rapid ventricular rate, when quinidine sulphate alone is not administered at once, and (c) as a therapeutic test when it is uncertain whether or not there is a slight degree of congestive failure, or perhaps as a means of warding off impending failure, as in the case of old people with dyspnea on exertion, of victims of chronic pulmonary emphysema with a higher degree of dyspnea than is readily attributable to the lung condition alone, and of patients with pneumonia." In Osler-McCrae,² under treatment of myocardial insufficiency, the statement is made concerning digitalis that "the indication for its use is insufficiency of the heart muscle, especially when auricular fibrillation is present, it should not be given when there is good compensation," and under treatment

¹ White, P. D. Heart Disease. New York, Macmillan Company, 1931.

² Osler, William and McCrae, Thomas. Principles and Practice of Medicine. New York, D. Appleton & Co., 1930.

of chronic valvular disease of the heart, "a common error is to administer drugs such as digitalis, on the discovery of a murmur or of hypertrophy" Cecil³ seems to make no reference to the use of digitalis in heart disease except under the heading of treatment of cardiac failure, and the same is true of Musser.⁴

Our professional ancestors, as already stated, had what they called a "tonic" use of digitalis, using it in small doses as a cardiac "tonic." In recent years I myself have come to the belief that digitalis has a worthwhileness in treatment entirely apart from its undoubted value in the control of cardiac decompensation. This belief does not depend on any assumption that digitalis is a cardiac "tonic" in the usual sense of the word "tonic" but on the belief that digitalis helps to inhibit cardiac hypertrophy and to retard some of the aging process of the myocardium.

CARDIAC ENLARGEMENT AND CARDIAC EFFICIENCY

Before discussing further these uses of digitalis, I should diverge from my main topic to give my ideas in regard to the relationship between cardiac enlargement and cardiac efficiency. These may be stated in the thesis: Cardiac hypertrophy instead of being a beneficial process, is an injurious influence on cardiac function, the heart once enlarged, is already on its way to eventual decompensation, to retard hypertrophy is to prolong cardiac efficiency.

These statements seem in opposition to what is known of muscle function and the effects of training. Hypertrophy of the heart muscle has been considered to be a way of increasing heart function, because such seems to be true of skeletal muscle. If the arm muscles, for example are exercised these muscles enlarge and acquire greater strength. If the exercise is decreased, these muscles decrease in size and lose in strength. Why should not the same be true of heart muscle, in many respects so similar in structure to skeletal muscle? Briefly, the answer is that heart muscle surrounds a cavity and the effect of its contraction is to empty a cavity, conditions entirely different from those pertaining to skeletal muscles. When heart muscle hypertrophies, the cardiac cavities enlarge and contain more blood. The result is more work for the heart muscle to do. More work causes more hypertrophy and still larger cavities with still more of a load of work. It is the stretching of the muscle by an increased load that is the stimulus to hypertrophy. Stretching cardiac muscle enlarges the cavity surrounded by the muscle. For a time hypertrophy keeps in balance with increasing load resulting from enlarging the cardiac cavities. In the heart, however, with muscle forming the wall of a cavity, soon there is a disproportion between thickness of muscle wall and size of surrounded cavity and a lag ensues in hypertrophy in relation to the work demanded of the myocardium, followed by a decreasing efficiency of heart function.

Clinical observation has taught that with few exceptions the enlarged heart rarely recedes in size and that sooner or later the enlarged heart shows signs of inefficiency. It may be taken as a clinical dictum that cardiac hypertrophy with rare exception is the first evidence of cardiac failure, though it may long antedate any symptoms or signs of cardiac insufficiency. If one considers that type of heart disease which is most frequent in adults, so-called chronic myocarditis, chronic

nonvalvular heart disease or chronic myocardial insufficiency, whatever term one prefers to use for this condition, it will be found that the foregoing statement is unqualifiedly true.

If, then, as I believe, cardiac enlargement is functionally harmful, intelligent therapeutics will seek to retard it. It is generally believed that increased demand on cardiac function serves to increase cardiac enlargement, and so clinicians advise patients with enlarged hearts to decrease their physical exertion. Can anything else be done in the way of treatment? I believe that just here digitalis has a definitely desirable effect, and if given daily in moderate dosage it will retard cardiac enlargement and delay the appearance of symptoms and signs of cardiac insufficiency. Consequently I advise patients in whom I find enlargement of the heart to decrease physical exertion and to take continuously from 0.1 to 0.15 Gm of digitalis leaves twice daily, unless this amount causes toxic symptoms, as occasionally it does. If that happens, the dose is reduced to a point at which no toxic symptoms appear. Digitalis for these patients is continued throughout the remainder of life. The optimum dose is that just below the one which eventually produces toxic manifestations, a dose to be determined by the method of trial and error.

USE OF DIGITALIS

If cardiac insufficiency has developed to a point to produce symptoms and signs marked enough to interfere with the individual comfort and activities, it is said that cardiac insufficiency has developed or that the heart is decompensated. Rest and digitalis is the practically universally instigated therapeutic management of such cases. In a large percentage so treated, symptoms and signs of cardiac insufficiency very largely disappear. With return to a greater degree of physical activity, sooner or later a return of the same symptoms and signs is to be expected. Clinical experience indicates that, if to such patients a daily ration of digitalis, short of toxic effects, is given, this return of evidences of cardiac insufficiency will be delayed. Consequently it has become a quite general practice to give such patients digitalis continuously in amount just short of toxicity, the proper amount approximating 0.15 to 0.25 Gm daily of powdered digitalis leaves, the exact amount being determined by the method of trial and error, some patients tolerating more and others less than this daily ration in the sense of being just short of toxicity. This elsewhere I⁵ have termed the continuation treatment with digitalis.

Now if digitalis, thus used as a continuation treatment, is helpful under the circumstances just enumerated, it is reasonable to suppose that, if given in this way prior to the development of symptoms and signs of cardiac insufficiency, development of these symptoms and signs might be delayed. My own clinical experience seems to be in accord with this idea, and so I have come to give digitalis in this way to patients in whom I can detect evidences of cardiac disease, particularly cardiac enlargement. It does seem as if cardiac enlargement is retarded and that these patients are capable of greater activity without having symptoms or signs of cardiac insufficiency than are patients otherwise similar not receiving digitalis.

There are certain individuals in whom, although there is no detectable evidence of cardiac enlargement, one can feel quite certain that sooner or later enlarge-

³ Cecil, R. L. *A Text Book of Medicine*, Philadelphia, W. B. Saunders Company, 1930.
⁴ Musser, J. H. *Internal Medicine*, Philadelphia, Lea & Febiger, 1932.

⁵ Christian, H. A. *Oxford Monographs on Diagnosis and Treatment*, New York, Oxford University Press, 3, 202, 1928.

ment of the heart will take place. The most numerous in this group are individuals with hypertension and next in frequency come those who have developed a diastolic murmur of some sort or who, with a past history of rheumatism, show a systolic murmur without any murmur in diastole. The query naturally occurs in light of what I have just been saying, Why not give digitalis to such individuals?

Certain observations of pharmacologists investigating digitalis have a bearing on this suggestion. At one time it was believed that digitalis would cause cardiac hypertrophy, but many experiments have shown that this did not occur. Cloetta noted that animals receiving digitalis over long periods of time had even lighter hearts than those receiving no digitalis. Furthermore, he found that, if aortic insufficiency was produced, animals subsequently given digitalis had hearts both smaller and more efficient than did animals with similar aortic lesions not receiving digitalis. Here is experimental evidence in favor of the clinical thesis that I have just enunciated in regard to beginning digitalis even prior to the development of hypertrophy in those patients in whom hypertrophy may be expected to develop.

Observation has shown that in the aging process the heart muscle loses water. Other observations show that one effect of digitalis is to increase hydration in heart muscle. This points to a probable therapeutic effectiveness of digitalis for elderly patients not to be expected in the young. Heart disease due to myocardial insufficiency is most frequent in the later decades of life. Clinical experience points to a particular usefulness of digitalis in just this group of individuals, those past middle life (40 to 50), with cardiac enlargement without valve lesions, not yet having symptoms or signs of cardiac decompensation. Competent observers believe further that in elderly people with no evidence of cardiac enlargement but in whom circulatory efficiency is lessening, digitalis increases heart efficiency, and here digitalis possibly may be said to have a definitely "tonic" effect, presumably increasing the hydration, which has decreased in the aging process.

Pharmacologists have demonstrated a certain automaticity in the regulation of digitalis effects that help in the treatment of patients with cardiac enlargement. Digitalis before it exerts any digitalis effect, is fixed in the heart muscle. After fixation in the heart muscle it is split up into an inert carbohydrate and a substance that produces a digitalis action. This fixation varies directly with the concentration of digitalis circulated to the heart muscle and with the bulk of the heart muscle but indirectly with the rate of circulation through the muscle. These laws of digitalis action influence the effectiveness of digitalis therapy. As the heart enlarges, all other factors being unchanged, a given dose of digitalis has an increasing effectiveness in ratio to the increasing bulk of the myocardium. As the myocardium loses in efficiency, the circulatory rate in the coronary system of vessels is slowed. As a result of this more digitalis is fixed in the heart muscle fibers and this causes an increased digitalis action. In other words within certain limits, an automatic increase in digitalis action occurs under just those circumstances that would need a greater digitalis action and that without any increase in size or dose. As heart action improves, circulatory rate through the myocardium accelerates and fixation of digitalis decreases, thus bringing about a lessened effect from a given dosage than would be the case were there not this relationship. In other words when there is more need for digitalis,

digitalis is proportionately more effective, and when the need decreases, the same dose of digitalis has less effectiveness. This saves the clinician from the necessity of continuously changing digitalis dosage to meet changing function of the heart muscle.

CARDIAC ENLARGEMENT OR DILATATION

During the preceding discussion I have used cardiac enlargement and cardiac hypertrophy interchangeably. I have made no mention of dilatation of the heart. Whenever the heart enlarges or hypertrophies, the cavities of the heart enlarge and this is dilatation. Dilatation without hypertrophy practically does not occur. What clinically is considered acute dilatation of the heart is either a paroxysm of fibrillation or flutter or is actually a decrease in heart size with an accompanying decreased systolic output of blood. It seems to me, for the reason given, desirable not to use in clinical discussions the term dilatation of the heart, but to speak only of enlargement or hypertrophy.

VALVULAR HEART DISEASE

What has been said about nonvalvular forms of heart disease applies, too, to valvular types of heart disease except that since valve lesions occur chiefly in younger people, in whom heart muscle has not lost water, the action of digitalis on heart function is less effective than when given to older persons. Also, as valve lesions introduce an unchangeable mechanical factor decreasing heart efficiency, again not so striking an improvement is to be expected from giving digitalis to these patients. However, since there is no harm caused by giving digitalis, it is reasonable to give it, too, in valvular heart disease as just advised for nonvalvular heart disease both prior to and subsequent to the appearance of symptoms and signs of cardiac decompensation. It seems probable, however, that here it will not be as useful as with nonvalvular forms of heart disease.

LONG CONTINUED DOSAGE

Digitalis for the conditions just being discussed is continued over very long periods of time. Obviously, if a drug is to be taken daily over long periods of time, it is essential that the drug has no harmful effects, direct or indirect, that it has no habit-forming qualities and that from continuous use it does not lose its effectiveness. There is no pharmacologic or clinical evidence that any of these things happen. Repeatedly have I seen the patient who has been taking a daily dose of digitalis for weeks and months respond to an increased dose indicated by reason of developing evidences of cardiac decompensation, in just the same way as a patient with similar evidences of cardiac failure who had received no previous digitalis therapy.

If one will stop to think of the way digitalis acts, it will be seen to be an ideal drug, pharmacologically, for long continued dosage. Digitalis given by any route or dosage reaches the heart muscle, where it is promptly fixed or bound. In a short space of time it commences to be split within the muscle into a part that has digitalis action and an inert part. This splitting is a gradual process, long continued, very slowly decreasing in the degree of digitalis action on the heart muscle. Before one dose has ceased to act another can be given, which in its turn will be fixed and split and continue a digitalis effect. It is entirely possible on account of this way of action to space properly sized doses of digitalis so as to maintain a digitalis action throughout the twenty-four hours with but little fluctuation from hour to hour in the intensity of that action and to continue it prac-

tically indefinitely from day to day by suitable doses not closer together, let us say, than twelve hours. Could there be a more ideal mechanism for maintaining a therapeutic effect over very long periods of time? In this respect digitalis has a part almost like the replacement therapy of thyroid gland substance in myxedema, insulin in diabetes mellitus and liver extract in pernicious anemia, for all of which physicians say to their patients you must continue taking this daily so long as life lasts.

Peter Bent Brigham Hospital

TECHNIC OF NONSURGICAL DRAINAGE OF THE BILIARY TRACT

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Recent developments in the study of biliary tract disease have given added importance to nonsurgical drainage of the biliary tract. This description of technic, based on the procedure described by Lyon¹ in 1923 and including recent improvements, is given because the drainage can have no diagnostic or therapeutic value unless it is properly performed. The method described has proved satisfactory in more than 3,000 drainages which have been done as part of the routine in the Medical and Surgical Gall Bladder Clinic of the New York Post-Graduate Hospital.

In the performance of a drainage, the relaxation and comfort of the patient are important. A quiet room with not more than one patient gives best results. Reassurance on the part of the operator is helpful if the patient has not had the tube before. He is instructed to swallow the tip of the tube in the same way as food. Before he does so, the tip is moistened by water or oil. After the tube tip has passed the glottis, as indicated by a tug, which can be felt by the operator, it can be passed quickly into the stomach without further swallowing.²

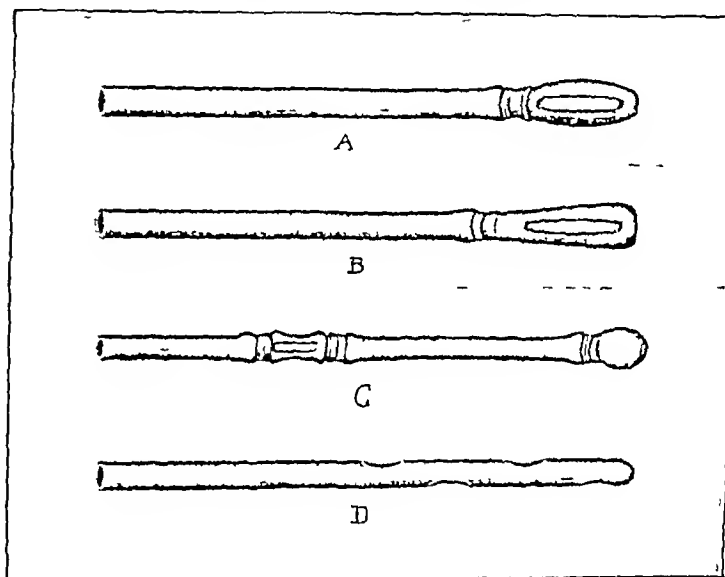
The duodenal tubes used in this clinic are the Levin catheter-tip and the metal-tip models such as the Rehfuß, Lyon, and one that I³ have recently described. In our experience the metal-tip models shown in the illustration have proved more satisfactory for the average patient. The terminal weight allows more certain passage of the tube into the duodenum and tends to prevent its regurgitation into the stomach. A fresh resilient tubing is essential for good results. The duodenal tube, when not in use, should be hung in a dark closet rather than coiled. The metal tips when corroded should be replaced.

Our tube has proved useful, especially in patients in whom drainage by other types of duodenal tubes has been unsuccessful. The features of this tube which have been described include the use of a larger tubing, a metal tip of smaller diameter, and a terminal weight which acts as a leader in drawing the bucket into the

duodenum and tends to hold it there. When drainage is to be repeated, the markings of the tube provide information as to what length of tubing was used to procure bile. For this purpose there is a numbered scale from the fourth, or 80 cm, mark to the two-ring mark, the number at the lips of the patient during the drainage is recorded on his chart.

For drainage the patient is instructed to report in the morning with an empty stomach. If a previous drainage has proved unsatisfactory, a preliminary course of bromides or belladonna is given over a period of three days, including the morning of the drainage. For sensitive throats and to prevent gagging, a throat spray of 4 per cent cocaine hydrochloride usually gives relief. Retching or excessive salivation after the tube is in the stomach is controlled by the injection through the tube of a solution of 30 grains (2 Gm) of triple bromides or one-fiftieth grain (13 mg) of atropine sulphate. These measures also relieve pylorospasm, which is indicated by failure of duodenal intubation.

The passage of the tube from the stomach into the duodenum affords the greatest possibility of difficulty. This may be done with the patient in the sitting position or with the patient lying on the right side. By either



Types of duodenal tube tips A, Rehfuß, B Lyon, C author's D, Levin

method a gastric specimen is procured after the tube has been passed, the patient remaining in the sitting position, to approximately the two-ring mark. The stomach is lavaged with hot water. The tube is then withdrawn nearly to the one-ring mark.

The timing of the passage of the tip through the stomach is essential to allow engagement of the tip in the pylorus and to prevent looping. The tube is best introduced by the patient, if cooperative. He is given a watch and shown a marker on the drainage tube. This marker is placed at the fourth mark if the sitting position is used, at the three-ring mark if the patient is lying on the right side. For the sitting position the tube may be pushed down at the rate of one inch a minute, for the prone position one inch every two minutes. Our usual procedure is first to attempt introduction in the sitting position. If this is unsuccessful in obtaining bile even after a stimulation with hot water, the tube is withdrawn to the one-ring mark and passed with the patient lying on the right side.

Fluoroscopic control of duodenal intubation as described by Morgenstern⁴ has been of value in difficult

This work has been aided by a grant from the Oliver Rea Fund. From the Departments of Medicine and Surgery of the New York Post-Graduate Hospital.

¹ Lyon, B. B. V. Non Surgical Drainage of the Gall Tract, Philadelphia, Lea & Febiger, 1923.

² The complete equipment includes drainage tubes, a 1-ounce bulb syringe, ten 2-ounce wide-mouth bottles with labels and corks (for bile specimens), pus basin, a 32 ounce graduate, drinking glass, safety pins, a dozen paper napkins, a throat spray containing 4 per cent cocaine hydrochloride, a 16 ounce bottle of 50 per cent magnesium sulphate, a 2 ounce bottle of olive oil, 4 ounces of triple bromide mixture, a vial of tablets of atropine sulphate, 1/100 grain and a vial of congo red paper. A large ring stand provides an adjustable tray for holding the drainage bottle. A clamp on the stand secures the drainage tube.

³ Twiss, J. R. A New Type of Duodenal Tube Tip, Am J M Sc. 185: 109 (Jan) 1933.

⁴ Morgenstern, Morton. A Simplified Procedure for the Introduction of a Tube into the Duodenum, J A M A 97: 175 (July 18) 1931.

patients For this purpose our own tube or that of Levin is used The patient stands before the fluoroscope with the tube in the stomach, facing the operator, who is seated The tube is withdrawn until it is seen to hang vertically in the cardiac end of the stomach The patient is then instructed to swallow the tube slowly and to breathe deeply, at the same time the operator pushes the greater curvature of the stomach upward with the left hand and directs the tip toward the pylorus with the right hand By this means the tube can frequently be introduced into the duodenum in a few minutes The tip can easily be seen looping upward and over into the duodenum in the right upper quadrant This action is best visualized with the metal tip The injection of an ounce of very hot water is at times of assistance in passing the tip through the pylorus

When no fluoroscope is available, the position of the tube in the duodenum may be checked in several ways The character of fluid aspirated may be of assistance Gastric contents are watery, are turbid, contain flakes of mucus, and turn green if bile stained Duodenal contents are usually clear, homogeneous, more viscid, and golden yellow if bile is present A stimulation with hot water is sometimes necessary to obtain bile Gastric contents containing free hydrochloric acid turn congo paper blue This reaction usually disappears in duodenal contents Air injected by syringe into the stomach usually returns promptly, if the tip is in the pylorus or duodenum the return of air is retarded

After the duodenum has been entered, 1 or 2 ounces (30 or 60 cc) of clear golden yellow bile usually drains by siphonage After this an ounce of warm 16 per cent magnesium sulphate is slowly injected, allowed to remain two minutes and then siphoned off before the bile specimen is collected Two similar injections of 25 per cent magnesium sulphate are given to obtain further specimens If dark concentrated bile is not obtained after three injections of magnesium sulphate, an ounce of warm olive oil is instilled and allowed to remain in the duodenum ten minutes after which further specimens are obtained If at any time the flow of bile ceases this may be due to plugging of the tip by mucus The tip may be out of position, having gone beyond the duodenum or regurgitated into the stomach

Specimen bottles of bile are numbered consecutively, beginning with the gastric contents Each is designated according to the stimulant used as described elsewhere Chemical analyses are done as indicated Usually about 2 ounces of bile is obtained after each stimulation, the total amount of bile being approximately 12 to 15 ounces (350 to 450 cc)

Examination of bile specimens is recorded by a check system on a special drainage sheet The volume of each specimen is noted together with its appearance as to color, viscosity, turbidity, and amount of sediment A sample of sediment is procured by means of a pipet from each bottle and examined microscopically A quantitative estimate is made of such elements as clear or bile-stained pus cells, columnar epithelial cells, crystals of cholesterol or calcium, calcium bilirubinate, bile-stained mucus and debris

Sterile drainages must be done under certain precautions A separate room is used for this purpose All containers, equipment and solutions are sterilized

before use The patient is instructed to gargle repeatedly before the drainage, using a solution of 1 drachm of silver nucleate to a half glass of sterile water The patient is cautioned against swallowing saliva, and the gastric lavage is performed with hot sterile water In taking a culture the terminal piece of rubber tubing is removed temporarily from the straight glass tube, or from the arm of the Y tube which has not been used for injecting fluid The sterile glass tip is then flamed before bile specimens are collected A few cubic centimeters of sterile water is first run through the tubing and cultures are taken in broth to check sterility Five cubic centimeters of each type of bile is collected in a plain sterile test tube for plating purposes By this technic it has been possible to obtain sterile cultures in a large proportion of cases and to obtain a single organism repeatedly in the same patient

SUMMARY

1 Recent investigation has confirmed the importance of duodenal drainage as a means of investigating the biliary tract

2 Proper performance of this procedure is essential for the results to have any value in the diagnosis or treatment of biliary tract disease

3 The clinic routine as outlined has proved satisfactory in more than 3,000 drainages

65 East Fifty-Fifth Street.

THE EFFECTIVENESS OF COMMERCIAL DIPHTHERIA TOXOID IN ACTIVE IMMUNIZATION OF INFANTS

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Diphtheria toxoid as an antigen for the production of active immunity has proved very effective¹ The report of a series of 100 infants so treated was published in 1931² In this group, 98 per cent were rendered negative to the Schick test, in these cases the production of immunity was quite rapid, the greatest proportion showing a negative Schick test within two weeks of the last dose of toxoid and complete immunity being produced in six weeks in practically all In this group the technic of immunization consisted in the hypodermic injection of two 1 cc doses of toxoid, spaced at a three weeks interval in thirty-six and at a one week interval in eighty-one The group in which the short interval was used apparently showed just as good results as the one with the longer interval A commercial toxoid was used, all of which was produced by the same manufacturer

In continuing the immunization program during the past year, a batch of toxoid was purchased from another manufacturer In the group of babies immunized with this particular material, the results seemed less favorable Immunization seemed to be slower in appearance and the number of failures greater It was therefore decided to place several groups of infants on various types of commercial toxoid to determine whether or not there might be some variation in antigenic potency in

¹ T. K. and E. A. A. Diagnostic Methods and Metabolic Studies in Biliary Tract Disease to be published

² A. M. G. La methode d'immunisation active par l'anatoxine de diphtherie. La technique et les resultats. Bull. de l'Inst. Pasteur 30: 166, 1931

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¹ Ramon, G. La methode d'immunisation active par l'anatoxine de diphtherie. Etude critique et comparative. Bull. de l'Inst. Pasteur 30: 166, 1931

² G. Greenard, Jr. et al. Diphtheria Toxoid (Diphtheria Anatoxin Ramon) in Infant 1. A. M. A 97: 228 (July 20) 1931

the material marketed. The groups were taken in rotation as positive Schick tests were obtained, with no attempt at selection. The technic was the same in all infants and was identical with that used in the series reported with the exception that a one week interval was used in all cases. Two distinct series were run with the toxoid that gave poor results, separate packages being purchased for each series, and immunization carried out in the second series six months later than that of the first to rule out the possibility that a single

mately 97 per cent completely immunized, and the immunity here also was rapid in appearance, the results being comparable to the first series reported.

The great difficulty in achieving absolutely parallel series of cases in clinical investigation is readily apparent. In this connection, age is of considerable importance in comparing the effectiveness of an antigen, for it has been shown that the ability to produce antibodies increases with age.⁵ The age distribution of the various groups is shown in table 2. It will be noted that the groups in which 100 per cent immunity was obtained (thirty-nine cases) in general tended to be composed of older infants than group 3 series a, in which 85 per cent were rendered Schick negative. On the other hand, group 3 series b, with only 80 per cent rendered immune, gave very nearly the same age distribution as the infants in groups 1 and 2, which yielded 97 per cent immunized, 66.6 per cent below 6 months in the former and 64.2 per cent below 6 months in the latter. The preponderance of older infants in groups 4 and 5, however, may be a factor in the complete lack of failures noted here.

The age distribution of the infants in whom the Schick test remained persistently positive is of interest in this regard. It will be noted that all but one of these twelve infants were under 6 months of age, a finding in agreement with the statements in the literature that young animals form antibodies badly. It is also noteworthy that with a potent toxoid most infants under 6 months of age can be rendered Schick negative rapidly.

TABLE 3—Age Distribution in Cases Persistently Positive

1 M N	16 days	7 M M	3 months
2 M A T	3½ weeks	8 F B	4 months
3 B B	2 months	9 M L	5 months
4 J Mc	2½ months	10 B A	5 months
5 B H	3 months	11 J S	6 months
6 M B	3 months	12 D Mc	21 months

The variability in antigenic potency of various batches of diphtheria toxoid is of great importance. It is obvious that considerable discrepancy in the results of immunization by the use of toxoid will appear when material of inferior antigenic potency is being marketed. Perhaps the outstanding advantage of this agent is the fact that a material of high antigenic potency is made available which is nontoxic, irreversible and very resistant to changes in temperature, aging and the like. Ramon⁶ has pointed out the ease and accuracy of the determination of antigenic potency of diphtheria toxoid by the flocculation test. Together with Nélis⁷ he has demonstrated the agreement between flocculation and clinical tests for antigenic potency. In a group of 269 children vaccinated with anatoxins of 7 and 4.5 units, respectively, 80 per cent were rendered Schick negative, and in 293 parallel cases in which anatoxins of 16 and 12.5 units were employed, 94.2 per cent were rendered Schick negative in from twelve to fourteen days. These results are strikingly similar to those noted in our babies.

In general, it may be said that the five groups of infants, while differing from one another slightly in some respects, are nearly enough parallel to act as test groups for the various toxoids used. The discrepancy

TABLE 1—Comparative Results of Immunization with Five Commercial Toxoids

Toxoid	Cases	Per sistent Posi- tive	Negative									
			2 Wks		4 Wks		6 Wks		8 Wks		10 Wks	
			No	%	No	%	No	%	No	%	No	%
1	30	1 3.3	14	46.6	12	40.0	7	23.3	1	3.3		
2a	25	1 2.8	20	80.0	11	44.0	1	4.0	2	8.0		
3a	15	4 14.2	4	12.5	7	18.7	6	31.2	1	6.2	4	15.7
3b	30	0 0.0	16	66.6	7	12.5	7	12.5			2	4.1
4	17	0 0.0	7	17.6	12	70.5	2	11.7				
5	22	0 0.0	1	13.5	17	77.2	1	4.5			1	4.5
Total	162		12	7.4	60		62		4		7	

lot of ineffective material might have been used. The toxoid was purchased in the open market and was used up quite rapidly, in every case within almost a year of the expiration date as given on the package.

The results are given in table 1. It will be noted that in the five brands of toxoid used one, designated as 3, was definitely less effective than the other four. In the first series of twenty-eight cases, four, or 14.2 per cent remained persistently positive. Of the twenty-four infants completely immunized, the interval between the last dose of toxoid and the ensuing negative Schick test was over six weeks in seven cases and as long as twenty weeks in one. In this connection it must be borne in mind that, in an individual who has received a primary antigenic stimulus, even minute secondary antigenic stimuli, such as the tiny amount of toxin used in a Schick test, may produce considerable amounts of antitoxin (Glenny,³ O'Brien⁴). It is therefore quite possible that some of these infants who became negative after ten, twelve or twenty weeks may have responded to the repeated small doses of Schick toxin with suffi-

TABLE 2—Age Distribution of Infants in Each Group

Toxoid	Cases	Per Cent Immu- nized	Under 2 Wks		2 Wks to 3 Mos		3 Mos to 6 Mos		6 Mos to 9 Mos		9 Mos to 12 Mos		Over 1 Yr	
			No	%	No	%	No	%	No	%	No	%	No	%
1 and 2	65	97	5	7.6	10	20.0	18	27.6	20	30.7	2	3.0	1	1.5
3a	28	85.8	1	3.6	11	39.2	8	28.5	6	21.4	0	0.0	2	7.1
3b	30	80	0	0.0	8	26.6	12	40.0	10	33.3	0	0.0	0	0.0
4 and 5	39	100	2	5.1	7	18.0	9	23.0	16	41.0	1	2.6	4	10.2

cient antitoxin to bring them above the Schick level. In the second series on toxoid 3, six of thirty infants, or 20 per cent, remained persistently positive. In this group all but two of the immunized infants demonstrated a negative Schick test within six weeks of the second dose.

The remaining groups showed definitely better results. Groups 4 and 5 showed 100 per cent protected, and all but one of these demonstrated a negative Schick within six weeks. Groups 1 and 2 showed approxi-

3 Glenny, A. T. The Principles of Immunity Applied to Protective Inoculation Against Diphtheria. J. Hyg. 24, 301 (Dec.) 1925.
4 O'Brien, R. A. Immunity Produced by the Schick Test, J. Path. & Bact. 29, 320 (July) 1926.

5 Freund, Jules. Influence of Age on Antibody Formation, J. Immunol. 18, 315 (April) 1930.
6 Ramon, G. The Essential Properties of Diphtheria Anatoxin. French M. Rev. 2: 13 (Jan.) 1932.
7 Ramon, G., and Nélis, P. Essais d'immunisation active chez l'homme au moyen d'une anatoxine diphtérique de valeur antigène élevée, Compt. rend. Soc. de biol. 107, 487 (June 5) 1931.

between the two series run on toxoid 3 and those with the remaining toxoids is so distinct that one is led to conclude that material 3 in the lots employed was of definitely lower antigenic potency than the other brands of toxoid that were tested

185 North Wabash Avenue.

FURTHER STUDIES ON THE USE OF WHEAT BRAN AS A LAXATIVE

OBSERVATIONS ON PATIENTS

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In a previous paper¹ were reported studies of the laxative effects in healthy men of wheat bran and an acid-extracted product called "acid washed bran." These studies showed (a) that wheat bran and "acid washed bran" possess demonstrable laxative power when tested on healthy men subsisting on known carefully controlled diets, (b) that there is a quantitative relationship between the fiber content of the diet and the degree of laxation prevailing in healthy men, and (c) that the laxative value of bran and bran products may be estimated fairly accurately from the fiber content. In view of the objections on the part of certain clinicians² to the use of bran as a laxative, it becomes of importance to determine the limitations, if any, of these reactions, which were the results of studies on healthy men.

It was believed that a study of the actual laxative performance of patients suffering from constipation when subsisting on diets of known fiber content would yield data of value. It is conceivable that many such patients are actually ingesting rations too low in roughage content and erroneously assuming that their roughage intake is adequate. There is the possibility that many cases of constipation are due to this cause and would show satisfactory laxation when the fiber intake was made adequate by ingestion of bran or other fiber-rich material. It is also conceivable that certain individuals with pronounced tendency to constipation are characterized by a particular bacterial flora or the presence of cellulase (?) capable of decomposing ingested fiber to an unusually high degree, and, as a result these individuals actually lack fibrous roughage sufficient to stimulate normal eliminatory processes by the time the food residues reach the rectum. Such individuals might be regarded as requiring a higher fiber minimum than that found for the healthy men on whom the earlier studies were made. Careful observations of the degree of laxation prevailing when on diets of known fiber content and tests of bran and bran products in such cases should yield much information suggesting the limitations of the results of the previous study and the validity of one or more of the possible explanations of constipation just given. The chief objective of the present investigation was the performance of such tests on patients suffering from constipation.

The expenses of this research were defrayed in part by a grant from the General Electric Corporation, New York.
From the Department of Experimental Chemistry and of Internal Medicine, Yale University School of Medicine.
G. R. Cowgill and Albert J. Sullivan: Laxative Effects of Wheat Bran and Acid Washed Bran in Healthy Men. A Comparative Study. J. A. A. P. S. 1: 175 (May 1914).
A. J. Sullivan: W. C. Phillips: J. Med. 14: 250 (A. D. 1912).

PLAN OF INVESTIGATION

Patients—Six men, all of whom had suffered from constipation for a considerable period, were secured for this study. Brief summaries of clinical data of interest are here presented.

Mr J., a medical student, aged 25, had suffered from constipation for four or five years. He averaged about nine stools in two weeks and was in the habit of taking a double dose of seidlitz powders about once in two weeks when especially constive. He ate more fruit and vegetables than the average person and stated that, if he ate nothing but fruit, his bowels would be regular. When constive, he suffered only from lassitude and from rectal spasm due to straining.

Mr M., a medical student, aged 23, had been troubled with constipation for years. He averaged about five small stools a week but was able to go four or five days without a stool without exhibiting any symptoms. He ate very little fruit and vegetables, his diet consisting chiefly of meat, cheese, milk and bread.

Mr E., aged 40, unemployed for some time, had suffered from constipation and indigestion for twenty years. During the past year the condition had become progressively worse. He had been taking various cathartics irregularly over a period of years. When constive, he suffered from epigastric distention, the feeling of a "lump in the stomach" and heartburn. He had taken a great deal of sodium bicarbonate for the gastric distress. Roentgenograms of the upper gastro-intestinal tract were negative. He ate but little fruit and green vegetables.

Mr F., a laboratory assistant, aged 51, had been troubled with constipation for about fifteen years. He had suffered from occasional pain in the lower part of the abdomen and at infrequent intervals had a little indigestion. Over a period of years the patient had taken an enema three times a week. A series of roentgenograms of the gastro-intestinal tract yielded negative results. During the past six months the patient had been fairly comfortable on a low residue diet supplemented with liquid petrolatum and fluid extract of cascara sagrada daily.

Mr C., a janitor, aged 33, never suffered from constipation until the past six months. During this period, at irregular intervals his bowels became constive and he then suffered from sharp pain in the left flank. The pain was probably due to a renal calculus in the left kidney pelvis which has subsequently been removed, with complete relief of the pain.

Mr H., aged 35, unemployed, had suffered from chronic constipation since an appendectomy in 1926. It was impossible to estimate the degree of constipation, for the patient had taken cathartics almost daily over a period of five years. His stools had been small, hard, often coated with mucus, and painful to pass. At the beginning of this study the patient complained of a host of symptoms: gas and belching pain in both lower quadrants, pain during defecation, a feeling as if his intestines were "raw," and nervousness and palpitation. Roentgenograms revealed some redundancy and spasticity of the colon. Skin tests with more than 200 common allergens revealed a slightly positive reaction only to beans, beets and broccoli.

It is not our purpose to discuss the clinical aspects or the classification of cases of constipation. From the brief abstracts given it will be seen that, although the subjects were nearly all young men, several different types of constipation are represented. One would suspect that in Mr M. the constipation was due to sedentary habits and a low roughage diet. Mr H.'s case is a fairly typical example of the "irritable colon," a state midway between the states of spastic constipation and mucous colitis. Mr C.'s case would perhaps be classified by some as an instance of "reflex constipation." The remaining three patients were troubled with simple constipation although Mr E. suffered from more than the usual amount of gastric symptoms of reflex origin.

Plan—The patients subsisted on carefully selected and controlled basal diets throughout the entire period.

of the test namely, from fifty-seven to sixty-nine days, or approximately from eight to ten weeks. At intervals the basal diet was supplemented with the product under investigation. The plan of experimentation is summarized in table 1. A study of this table will reveal that in periods 1, 4 and 6 the basal diet alone was

TABLE 1—Plan of Experimentation *

Period	Description of Experimental Period
1	Basal diet only. Fiber intake ranged from 30 to 38 mg per kilogram of body weight daily. Pronounced constipation is characteristic of this level of fiber intake in healthy men.
2	Basal diet plus an amount of commercial bran that would make the fiber intake approximate 50 mg per kilogram of body weight per day. In normal men this level of fiber intake is associated with "once a day" movement.
3	Basal diet plus an amount of commercial bran that would make the fiber intake approximate 90 mg per kilogram of body weight daily. In healthy men this level of fiber intake is associated with satisfactory laxation.
4	Intervening period of subsistence on basal diet only until constipation resulted.
5	Basal diet plus an amount of a processed † bran product that would make the fiber intake approximate 90 mg per kilogram of body weight daily.
6	Intervening period of subsistence on basal diet only until constipation resulted. Same as period 4.
7	Basal diet plus fruits and vegetables so as to give a fiber intake of approximately 90 mg per kilogram of body weight daily.
8	Same as 7 and supplemented with one-half the amount of processed bran product that was used in period 5. The fiber intakes ranged from 108 to 113 mg per kilogram of body weight daily.

* In the case of Mr. H., who presented the picture of "irritable colon" an attempt was made to subsist on the diet used in period 7, but this was unsuccessful; the patient's condition became worse, and therefore the tests with periods 7 and 8 were abandoned. Instead the patient was given the basal diet plus an amount of dried powdered agar-agar approximately equal to the amount of commercial bran used in period 3. This was not well tolerated; when one-half of this amount of agar was given, the patient's condition was interpreted as being "very satisfactory."

† By processed bran product is meant a material made from milled wheat bran mixed with other ingredients, chiefly sugar, so as to constitute a palatable food of the "bran breakfast food" type comparatively rich in crude fiber.

ingested, but only period 1 is called the basal period. There is a definite reason for this. In every case period 1 was at least six days long, and, taken with the preliminary period during which the exact amounts of the foods to be taken daily were being determined, gave a period of at least ten days (in one instance fourteen days) on the low fiber diet. We feel that this therefore constitutes a basal period in the real sense of the word. Periods 4 and 6, on the other hand, were not as long, being determined by the development of constipation and the patient's desire for some change that might improve laxation, in view of the earlier studies on healthy men we feel that in periods 4 and 6 there may have been some hang-over effect of the previous periods, and therefore we have called these periods intervening periods of subsistence on basal diet only.

Diet—All meals were eaten in the laboratory. Representative samples of the foods used were analyzed for moisture and crude fiber.³ The details of the diet were determined during a preliminary period in the same manner as that described in a previous paper.¹ As an illustration of the basal diet finally selected we present in table 2 the rations used by Mr. J. in the basal periods and in period 7, when fruits and vegetables were used as the supplements.

The factor of hydration was controlled as in the previous study on healthy men by measurement of the normal daily intake of fluid during the preliminary period, selection of a desirable daily volume of fluid intake, and adherence to this standard thereafter throughout the experiment. In this way each person conformed to his own desired standard with respect to fluid intake.

³ Official methods of the Association of Official Agricultural Chemists, 1925, were used.

Other Data—The men were asked to defecate, as far as possible, only when there was the definite urge to do so. They were provided with cardboard cartons so that any stools passed at home could be saved and brought to the laboratory. All dejecta were weighed as far as possible immediately on passage. When passage took place at home or elsewhere the tare weight of the cartons, which was known, was considered in arriving at the true weight of the stool. The specimens were dried in a current of warm air, the samples belonging to a given experimental period collected, mixed, ground and analyzed for moisture and crude fiber. Wood charcoal (norite) was used to differentiate the stools of different periods. Each patient recorded the time that each stool was passed and his subjective impressions with respect to ease of passage and similar observations.

RESULTS

Subjective Impressions—Each of the individuals interpreted his laxative condition while on the basal diet alone—periods 1, 4 and 6 (table 1)—as one of pronounced constipation. This agrees with the results obtained with healthy men in the earlier studies, in which it was observed that a daily fiber intake of from 30 to 40 mg per kilogram of body weight was associated with marked constipation. The degree of discomfort experienced by the men in the present investigation seemed to vary somewhat. In period 2, when commercial bran was added to the diet in amounts sufficient to bring the daily level of fiber intake up to about 50 mg per kilogram of body weight, all the men except Mr. H. reported improvement but with their laxative condition being still far from ideal. In period 3, in which the basal diet was supplemented with still more commercial bran so as to make the level of fiber intake approximate 90 mg per kilogram daily, all the men again, with the exception of Mr. H., experienced a distinct improvement in laxative condition and stated

TABLE 2—Diets Used by Mr. J. (Body Weight, 83.2 Kg.)

Basal Periods		Period 7	
Food	Amount per Day	Food	Amount per Day
Eggs	2 boiled	Eggs	2 boiled
Bacon	75 Gm	Bacon	75 Gm
Hamburger steak	150 Gm	Hamburger steak	150 Gm
Bread, white	270 Gm	Bread, white	360 Gm
Butter	90 Gm	Butter	60 Gm
Milk	400 cc	Milk	400 cc
Cocoa	200 cc	Cocoa	200 cc
Orange juice	100 cc	Orange juice	100 cc
Ice cream	75 Gm	Ice cream	75 Gm
Ketchup	25 Gm	Ketchup	25 Gm
Water	1,550 cc	Water	1,500 cc
Jelly	250 Gm	Potatoes	165 Gm
Crackers, soda	36 Gm	Peas	150 Gm
Cheese, American cream	50 Gm	Peaches	120 Gm
Banana	100 Gm	Celery	50 Gm
		Raisins	50 Gm
		Tuna fish	50 Gm
Fiber content 2.78 Gm, or 33 mg per kilogram		Fiber content, 7.32 Gm, or 88 mg per kilogram	

In period 2, to get a total fiber intake of about 50 mg per kilogram per day, 18 Gm (3/4 ounce) of commercial bran was taken as a supplement at the noon meal.

In period 3, to get about 90 mg per kilogram per day of fiber 44 Gm (1 1/2 ounces) of commercial bran was taken as a supplement, one-half at the noon lunch and the remainder at the evening meal.

In periods 5 and 8 55 Gm (2 ounces) and 28 Gm (1 ounce), respectively, of a processed bran product was taken as a supplement daily at the evening meal.

that conditions were satisfactory, judging from subjective impressions. The exceptional individual, Mr. H., it should be remarked, presented the picture of "irritable colon"; he was more comfortable when receiving the basal diet alone than when receiving any supplements designed to increase the fiber content.

After an intervening period of subsistence on the basal diet alone until constipation resulted (period 4), the ration was supplemented with a processed bran product in amounts sufficient to bring the total daily fiber intake up to about the 90 mg per kilogram level. With the exception of Mr H, all the men reported their laxative conditions as being satisfactory, but with a slight difference in favor of commercial bran. On the other hand, they also reported that the processed bran was much easier to eat in appreciable quantity, and for that reason greatly to be preferred.

After another intervening period on the basal diet alone, a trial was made of a ration again containing about 90 mg of fiber per kilogram daily but with almost all the fiber furnished by fruits and vegetables. An example of the type of ration used here is given in table 2.

It is important to note that Mr H, with the "irritable colon," could not tolerate this diet and therefore had to return to subsistence on the basal diet alone, as explained in the footnote in table 1. Of the remaining five persons, two—Mr F and Mr C—considered that their laxative condition was satisfactory while on the regimen of fruits and vegetables. The other three men did not regard their condition as satisfactory and desired to supplement this diet with the processed bran product and therefore took daily one half of the quantity that had been taken during period 5 (table 1). As a result of this addition, the laxative conditions of these men improved and were interpreted subjectively as "very satisfactory."

Interval Between Defecations—In our previous studies it was pointed out that in healthy men the average duration of the interval between defecations is a rough measure of the extent to which laxation is taking place. It becomes of interest, therefore, to inquire as to the duration of this interval in the patients here studied. In table 3 are given the averages of these intervals in hours yielded by the data of the present investigation. In the last column of the table are presented the averages of the data from comparable earlier experiments, which were performed on healthy men. It should be stated that the data from the previous investigation on healthy men showed much less variation than the data obtained from the present study made on individuals suffering from constipation.

It will be noticed in table 3 that in the case of Mr J the intervals were not far from twenty-four hours, representing a laxation rate of once a day, except in period 6 when there was marked constipation, indicated by the average interval of fifty-four hours, and in period 8 when the highest level of fiber intake was tried and the interval thereby reduced to sixteen hours. Mr J had long been troubled with constipation and had endeavored to meet this condition by regulating his diet. We are of the opinion that he may have conditioned himself more or less to a once-a-day regimen, and therefore over much of the earlier part of the present study was making an effort to secure a bowel movement every day. This supposition is supported by the fact that he exhibited this rate of laxation even when the average weight of the fresh stool was as low as 38 Gm (table 4). It is possible that the experimental regimen and our emphasis on the importance of defecating only when there was a definite urge to do so was to some extent responsible for the long interval of fifty-four hours obtained in period 6.

The results with Mr M are interesting because of the extremely long interval of 77 hours recorded for

period 1, associated with the very low laxation rate¹ of 0.3, the lowest encountered in these studies. The effect of raising the level of daily fiber intake is evident as one examines the figures for Mr M for all periods. It will be noticed that the average duration of the interval was finally reduced to sixteen hours by the ingestion of as much as 113 mg of fiber per kilogram daily.

In the case of Mr E, the average interval between movements was quite definitely related inversely to the level of fiber intake. There is a definite suggestion that the ingested fiber of fruits and vegetables, period 7, did not function very well as a roughage, when the processed bran product was taken, period 8, the result was about the same as that obtained previously in period 5, when this bran product alone was tested.

In the case of Mr F the results were about the same as those obtained with Mr E except with respect to the regimen of fruits and vegetables. Mr F regarded his laxative condition during period 7 as quite satisfactory, although the average interval was twenty-four hours.

TABLE 3—Average Duration in Hours of the Interval Between Defecations

Period*	Person						Average†
	J	M	E	F	C	H	
1 Basal diet only fiber intake 30-38 mg per Kg per day	10	77	33	29	17	33	30
2 Basal diet plus commercial bran with the fiber intake at about 60 mg per Kg per day	23	47	32	24	18	14	24
3 Basal diet plus commercial bran with the fiber intake at about 90 mg per Kg per day	22	25	21	19	11	17	19
4 Basal diet only same as period 1	24	36	32	21	22	35	30
5 Basal diet plus processed bran product with fiber intake about 90 mg per Kg per day	20	23	23	17	14	16	19
6 Basal diet only same as 1 and 4	54	46	40	24	19		30
7 Fruit and vegetable diet the fiber intake about 90 mg per Kg per day	21	31	40	24	9		19
7 Same as 7 and supplemented with the processed bran product fiber intake 108-113 mg per Kg per day	16	10	24				

* An abbreviated form of the periods is given in this table and in tables 4 and 5. A more detailed description is given in table 1.
† Average for healthy men at this level of fiber intake.

Mr C's was classified as a possible "borderline irritable colon" case, because of the great number of stools passed, revealed by the data contained in table 3, in which the average interval was fairly constant and hardly indicative of constipation. Nevertheless, this patient experienced discomfort during the basal periods and considered his condition much better when the diet was supplemented with the commercial bran, the processed bran product, or the fruits and vegetables. It is quite possible that the patient was more sensitive than are healthy men to the presence of material in the large intestine and therefore received the urge to defecate oftener. The improvement, which, he believed, was associated with increased level of fiber intake, may possibly have been due to the slightly greater average weight of stool passed at each movement, the passage of the larger stool may have given a greater sense of complete emptying, which seems to be an important subjective factor, judging from the earlier observations on healthy men.

From this brief summary of the data in table 3 it appears that in three of the cases (M, E and F) the relation between the duration of the interval between defecations and the level of fiber intake is the same

as that occurring in healthy men, but the average duration in hours tends to be slightly longer in the case of these patients. In the three remaining patients, this relation is not exemplified, but special factors appear to be playing a rôle.

Amount of Intestinal Contents Eliminated—In the earlier studies performed on healthy men it was noticed that an increase in laxation is accompanied by the

appears to have had a remarkable capacity for retention of material in the lower bowel. In periods 2, 3 and 7, the average weights of his stools were 246, 271 and 262 Gm, respectively, weights considerably greater than those yielded by the healthy men in the previous studies, the greatest of which was only 158 Gm. Other high figures that might be cited are those for Mr. J in period 6, and Mr. E for periods 3, 5 and 7. These results support the observations of Hines, Lueth and Ivy and are doubtless to be attributed to the diminished sensitivity of the lower bowel to the presence of fecal material which some cases of constipation show.

It will be noticed that these unusually high average weights of stools were associated with low rates of laxation, although the amounts of material eliminated daily were comparable to those observed in the previous studies and were indicative of definite change in laxation. This suggests that in the interpretation of the data of the rate of laxation it is important to consider also the average weights of the dejecta as well as the amounts eliminated daily.

In conclusion it appears that, with respect to the relation of the level of fiber intake to the amount of intestinal contents eliminated, the results yielded by these patients are not essentially different from those obtained earlier from healthy men. There is evidence indicating that in these cases of constipation there is a decreased sensitivity of the lower bowel to the presence of fecal material. In these instances, nevertheless, commercial bran and the processed bran product were demonstrated to have definite laxative power.

TABLE 5—Percentage of Ingested Crude Fiber that Disappears During Passage Through the Alimentary Tract

Period	Person						Aver age	Aver age†
	J	M	E	F	O	H		
1 Basal diet only, fiber intake 30-38 mg per Kg per day	92	88	81	83	79	84	85	60
2 Basal diet plus commercial bran with the fiber intake at about 60 mg per Kg per day	61	70	74	56	72	71	67	44
3 Basal diet plus commercial bran with the fiber intake at about 90 mg per Kg per day	37	33	37	30	34	64	30†	
4 Basal diet only, same as period 1	80	70	87	62	84	81	77	60
5 Basal diet plus processed bran product, with fiber intake about 90 mg per Kg per day	48	34	50	51	43	54	48	
6 Basal diet only, same as 1 and 4	86	75	87	80	76		80	60
7 Fruit and vegetable diet, the fiber intake about 90 mg per Kg per day	85	50	71	85	55		69	
8 Same as 7 and supplemented with the processed bran product, fiber intake 103-113 mg per Kg per day	71	74	67				70	

* Average of data from healthy men.
† Data for Mr. H were omitted in calculating this average.

Fiber Intake and Laxation—In the earlier studies on healthy men it was found that there exists a definite quantitative relationship between the amounts of crude fiber ingested daily and the laxative performance. On the basis of these results it was suggested that there exists what might be called a "physiologic fiber or roughage minimum." It becomes of interest, therefore, to see to what extent the data yielded by the present study confirm or disagree with this suggestion.

In table 5 are given for each person the data indicating to what extent the ingested fiber disappeared during

* The first figure given in each group indicates the average weight of material in grams eliminated per day, the second gives the average weight in grams eliminated at each defecation, the third indicates the rate of laxation or number of movements per day. For example, in period 1, J eliminated 49 Gm of stool per day, an average of 38 Gm at each movement, and showed a laxation rate of 1.17 movements per day.
† Average of previous study on healthy men.

elimination of greater amounts of intestinal material, and from this work there came the suggestion that the urge to defecate may be due to a certain extent to the existence of what might be spoken of as a "threshold mass" in the lower bowel. In view of the observations of Hines, Lueth and Ivy* indicating a lowered sensitivity of the rectum of patients suffering from chronic constipation, one might expect a failure of the "threshold mass" idea to apply to the patients here studied. In table 4 are given the average weights of dejecta passed daily and for each movement, the rates of laxation, the averages for the different experimental periods, and comparable data yielded by the earlier studies.

If one compares the levels of fiber intake (first column of table 4) with the average weights of the amount of material eliminated daily (next to last column, table 4), a definite parallelism will be noted. This agrees with the results obtained in the earlier study on healthy men and confirms the view that the amount of intestinal excreta passed daily can serve as a criterion of the prevailing state of laxation.

When the data in table 4 for the amount of material eliminated at each movement are examined, some interesting variations are noticed. For example, Mr. M

4 Hines, L. E., Lueth, H. C., and Ivy, A. C. Motility of the Rectum in Normal and Constipated Subjects. Arch. Int. Med. 44: 147 (July) 1929.

its passage through the alimentary tract. Comparison of these figures with those for the fiber intake (corresponding periods, column 1) indicates very clearly that a much smaller fraction of the supplementary fiber—that of commercial bran, the processed bran product and the fruits and vegetables—disappeared during alimentary passage than was the case with the fiber of the basal diet. In the last column of table 5 are given some comparable data taken from the previous studies on healthy men. Comparison of these figures with those yielded by the present investigation (next to the last column) indicates very definitely that the fiber of the basal diet suffered a much greater decomposition in the case of the patients of the present study than was the case with the healthy men studied previously. Whatever the cause of this may be, possibly a particular bacterial flora, it seems reasonable to attribute the pronounced tendency to constipation which these patients exhibited to this fact that too small a fraction of the fiber ingested as part of the customary diet remains intact in the alimentary tract to function satisfactorily in a mechanical way as roughage to stimulate the normal eliminatory process.

In view of these results, the stability of the fiber, ingested as part of the commercial bran, the processed bran product and the fruits and vegetables under the same conditions, becomes important to determine, for on the results of such determinations depend to a very high degree the values of these substances as laxatives for such cases. In making such determinations it is necessary to assume that, during the period when the test supplement is being ingested, the same fraction of fiber of the basal diet remains intact after alimentary passage as was the case in the previous period when only the basal diet was being consumed. As the time during which the fiber remains in the intestinal canal is undoubtedly a factor determining the extent to which decomposition takes place, and as the use of any effective supplement shortens the time somewhat, this assumption cannot be entirely accurate. In the absence of any alternative plan by which to make the desired comparison this method, even in the face of the uncertain assumptions which it involves, has been followed.

An illustrative calculation should suffice to make clear the method used. In period 1, Mr. J. ingested a total of 18.54 Gm. of crude fiber, and eliminated by way of the stools only 1.54 Gm., or 8.3 per cent. In period 2 he ingested a total of 64.96 Gm. of fiber, 38.92 Gm. of which came from the basal diet and 25.9 Gm. from the commercial bran supplement. The total output during this period was 39.4 per cent, or 25.57 Gm. If one assumes that 8.3 per cent of the fiber of the basal diet was eliminated in this period as was the case during the first period then in period 2 there would be 3.23 Gm. of fecal fiber contributed by the basal diet. On subtracting this amount from the total output for the period one obtains 22.34 Gm. of fiber contributed by the supplement which in this case was commercial bran, this constitutes 86 per cent of the bran fiber that was ingested. Therefore one may say that only 8.3 per cent of the fiber of the basal diet was eliminated in contrast to 86 per cent of the fiber of the commercial bran. In all of the calculations the results of which are summarized in table 6 the data obtained in the basal period 1 were taken as properly representing the influence of the basal diet alone. For reasons already given, we do not think that in periods 4 and 6 the maximum effect of subsistence on the basal diet alone was obtained.

The results of the calculations made to determine the relative stability in the alimentary tract of the various sources of fiber used in this investigation are summarized in table 6.

In column 3 of table 6 it will be noticed that in basal period 1 the amount of ingested fiber recovered in the stools was quite low, ranging from 8 to 21 per cent. These figures should be compared with those for period 2 in column 4, which represent the percentage recoveries of the commercial bran fiber which supplemented the basal diet. In period 3, during which the amount of commercial bran ingested was such as to

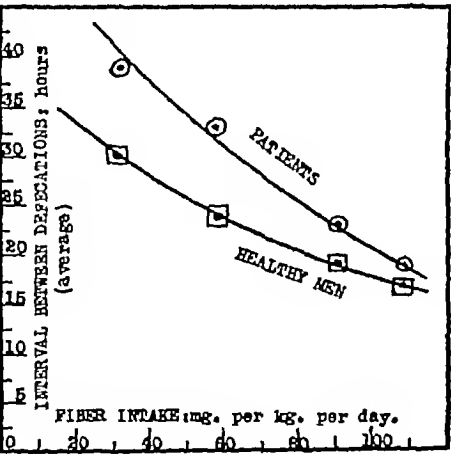
TABLE 6—Percentage of Ingested Fiber Recovered in Stools

Period	Person	Per Cent of Ingested Fiber	
		From Basal Diet Only	From Supplement Used
1 Basal diet only	J	8	
	M	3	
	F	12	
	F	19	
	C	12	
	H	21	
		16	
		15 av	
2 Commercial bran as supplement to give about 50 mg fiber per Kg per day	J		86
	M		50
	F		55
	F		88
	O		38
	H		57
3 Commercial bran as supplement to give about 90 mg fiber per Kg per day	J		95
	M		94
	E		93
	F		
	O		56
	H		60
4 Basal diet only	J	21	
	M	30	
	F	19	
	F	38	
	O	16	
	H	20	
		23 av	
5 Processed bran product as supplement to give about 90 mg fiber per Kg per day	J		71
	M		86
	F		77
	F		58
	C		84
	H		67
6 Basal diet only	J	14	
	M	25	
	E	13	
	F	20	
	O	25	
	H		
		20 av	
7 Fruits and vegetables so as to give about 90 mg fiber per Kg per day	J		15
	M		5
	E		20
	F		35
	O		35
	H		
8 Same as 7 but supplemented by one half the amount of processed bran product used in 5	J		20 av
	M		77
	F		90
			50

make the total fiber intake approximate 90 mg per kilogram daily, in contrast to 50 mg during period 2, it will be noticed that, with the exception of Mr. H, the patient with the "irritable colon," about 94 per cent of the fiber of the ingested bran was recovered in the stools. The figures for period 5, during which the processed bran product was tested at the 90 mg level of fiber intake, are somewhat variable and indicate somewhat smaller recoveries of ingested supplementary fiber. The results obtained with the diet in which fruits and vegetables furnished the supplementary fiber (period 7) are worthy of consideration. The average is 20 per cent, which is only slightly greater than the average for basal period 1 and identical with that for intervening period 6. From this it appears that in these

patients the fiber of the fruits and vegetables used as supplements suffered about the same degree of decomposition during alimentary passage as that of the foods used in the basal ration. This emphasizes further the fact that the fiber contained in the foods ordinarily used was more readily broken down during passage through the alimentary tracts of these patients than is true of healthy men, and on this fact one may rest an explanation of the great tendency to constipation which characterized these individuals. Since the fiber of commercial bran and of the processed bran product resisted this decomposition to a very considerable degree, and since the use of the materials was not attended with undesirable symptoms of any kind, these products may be considered to have special value as sources of roughage for such patients.

It will be noticed in table 6, by a comparison of periods 3 and 5, column 4, that the fiber of the commercial bran was somewhat more resistant to alimentary decomposition than that of the processed bran product. This finding agrees with the others pertaining to subjective impressions, amounts of material eliminated and rates of laxation. All of the men reported, however, that it was not easy to ingest appreciable quantities of commercial bran, the processed bran product, on the other hand, presented no such difficulty and therefore was greatly to be preferred as the source of supplementary fiber. It is suggested that perhaps the slight difference here noted may be related to the fact that fiber of the processed product is in a more finely divided state than that of the commercial bran and that, therefore, when the fiber of the processed product is suspended in the semiliquid chyme of the intestinal contents, more surface is available to the action of bacteria, or special ferments, with a resultant greater decomposition.



The relation between the level of fiber intake and laxation is shown. The curves indicate that for a given fiber intake laxation was poorer in the patients than was the case in the healthy men.

It will be noticed that in period 8 the processed product was tried as a supplement to the diet of fruits and vegetables and proved effective in promoting satisfactory laxation. Evidently, then, the fiber of the more palatable, easily ingested processed bran product here studied was sufficiently stable in the alimentary tract to give this material definite value as a supplementary source of fiber taken to promote laxation.

In table 7 are presented data from the previous investigation, which are believed to be fairly comparable to those obtained in the present study. The data from Mr C and Mr H were not considered here because both of these men gave some evidences indicative of so-called irritable colon, the remaining four patients, as

described elsewhere, suffered from simple constipation only and therefore may properly be compared as a group with the healthy men studied previously.

The data contained in table 7 have been plotted on coordinate paper with the result presented in the accompanying chart. The plot shows that in the two groups of men the same general relation exists between the level of daily fiber intake per kilogram of body weight and the laxative performance as indicated by the average interval between defecations, however, in the case of the patients, as indicated by the higher position of the curve, laxation was poorer than in the case of the healthy men, thus suggesting the existence of definitely

TABLE 7—Comparison of the "Physiological Fiber Minimum" of Healthy Men and Patients Exhibiting Simple Constipation

Fiber Intake per Day, Mg per Kg	Average Duration of Interval Between Defecations	
	Healthy Men, Hours*	Patients, Hours†
21 to 42 (average 31)	30	41
51 to 65 (average 58)	24	32
82 to 100 (average 90)	19	22
103 to 112 (average 107)	17	19

* Average of results from previous studies.
† Patients C and H were not considered because they presented some evidence of "irritable colon."

higher fiber or roughage minima characteristic of the patients. The study of the fiber intake and output (table 5) indicates that the chief reason for this higher "fiber minimum" in the case of these patients lies in the greater destruction of ingested food fiber during passage through the gastro-intestinal tracts of these individuals. For example, in table 5, 85 per cent of the ingested fiber of the basal diet disappeared during alimentary passage in contrast to 60 per cent for the healthy men, as shown by a comparison of the figures in the last two columns of table 5.

It will be noticed in the chart that at the highest levels of fiber intake studied, the two groups tend to exhibit almost the same degree of laxation. In this connection it should be remembered that at these high levels most of the ingested fiber was contributed either by commercial bran or by a processed bran product and therefore was present in a form that resisted decomposition in the alimentary tract to a very high degree (table 6). Under these conditions, therefore, the two groups might be expected to show about the same degree of laxation. In general, it appears reasonable to conclude that these data yielded by the patients suffering from simple constipation confirm the hypothesis that there is a physiologic fiber or roughage minimum intake which is necessary in order to promote satisfactory laxation.

TESTS WITH AGAR-AGAR IN A CASE OF "IRRITABLE COLON"

Mr H presented the general picture of so-called irritable colon. In all the experiments with the basal diet, commercial bran, processed bran product, and fruits and vegetables, the patient was most comfortable when subsisting on the basal diet alone (periods 1, 4 and 6), in spite of the fact that his laxative condition during these basal periods was one of definite constipation. It should be emphasized here that the bran products were not unique with respect to their undesirability in this case, a diet having the same fiber content but with the fiber furnished almost entirely by

fruits and vegetables was equally unsatisfactory. Evidently, then, fiber itself, regardless of the source, is contraindicated in such a case.

Alvarez believes that agar-agar is the best source of roughage to use clinically. Many clinicians have gained the impression that the fibrous roughage in certain foods is present in large discrete particles and that the undesirability of these foods for certain clinical cases is related to this. The expressions "bland diet" and "smooth diet" are generally understood to mean a diet free from "coarse" fiber in contrast to diets into which these "coarse" foods enter. Celery, fresh sweet-corn and other vegetables are instances of some commonly recognized "coarse" foods. On the other hand, agar-agar forms a gel when mixed with water and therefore presumably exerts its function as an indigestible roughage in the form of a soft jelly-like mass. In view of these considerations, it seemed desirable to test the efficacy of agar-agar as a laxative on Mr H.

At first the agar was added to the basal diet in such an amount as to make the daily roughage intake equal to about 90 mg per kilogram of body weight, the patient could not tolerate such a large intake. The dose of agar was then reduced so as to make the total roughage intake equal to about 50 mg per kilogram daily. Under these conditions Mr H was more comfortable than he had been before. From these admittedly few observations, made, however, under carefully controlled dietary conditions, it is clear that there may be a real basis for the contention of Alvarez that agar-agar has definite clinical value as a laxative. It is also clear that the dosage of even this product is important, too much of it being as undesirable as too little. Further work should be done on this problem.

COMMENT

At the beginning of this investigation, one of the authors (A. J. S.) was quite skeptical as to the value of bran in the treatment of constipation. He felt that the work on healthy individuals¹ was of interest but was probably not applicable to patients suffering from constipation. He had seen many patients who said that they had "tried bran" without relief of their constipation. He had seen some patients whose symptoms were quite definitely aggravated by the use of bran and other forms of roughage, and he was acquainted with the literature reporting cases of intestinal obstruction due presumably to bran. It is quite likely that because of unsatisfactory results in some cases he had swung to the extreme view held by many physicians at the present time that bran is contraindicated in all cases of constipation.

Observations on these six subjects suffering from constipation indicate that in certain cases bran will induce quite satisfactory laxation. At this point we must again emphasize the fact that all of our subjects were free from any organic disease of the gastrointestinal tract, with the possible exception of Mr H, whose case would be diagnosed as "irritable colon." It is interesting that he was the only one whose symptoms were aggravated by bran, whether in the crude form or in a milled product or by the fruits and vegetables tried, he was most comfortable when subsisting on the basal low-roughage diet. We agree with Alvarez that a bowel which is ulcerated, narrowed or highly irritable should not be subjected to the stimulus and added burden of highly indigestible material. On the other hand only a small percentage of individuals complaining of constipation suffer from organic diseases thus

falling outside the major group to which the "physiologic roughage minimum" principle applies. Most individuals treat themselves for costive tendencies, perhaps employing drastic measures for extended periods, the physician being consulted only when other symptoms appear or when complications ensue. At this stage, roughage may do more harm than good.

Our investigations indicate that bran was a satisfactory source of roughage in five out of the six cases of constipation studied. Four out of the five patients were definitely convinced of the value of bran in their cases as a result of their experience in this study and have continued its use for the past five months with excellent results. The fifth patient could not carry bran on a camping trip but intends to use it during the coming year. Mr H, the sixth patient, is now quite comfortable on a bland diet plus agar-agar.

It has been argued that it is absurd to prescribe bran or bran products as sources of roughage when one merely needs to have the patient eat more green vegetables and fruit to supply the needed bulk. In two of our patients, Mr F and Mr C, a diet high in vegetable roughage was just as satisfactory as the use of bran. On the other hand, three of the patients were not comfortable until they had added processed bran to the high fruit and vegetable diet. The study of the fiber content of the stools indicates that most of the vegetable fiber was being destroyed in the intestine. This not only confirms earlier studies reviewed by Schmidt and Strasburger,⁵ showing that there is a variable utilization of the cellulose contained in different vegetables, but also emphasizes that the utilization of the fiber of the same vegetable may vary markedly in different individuals. Mr M, stated that he did not like vegetables and rarely ate them. He definitely preferred to take his roughage in the form of 2 ounces (60 Gm) of the processed bran product rather than as 150 Gm of peas, 120 Gm of peaches, or 50 Gm of raisins (table 2), for example.

SUMMARY AND CONCLUSIONS

The laxative values of commercial wheat bran, a processed bran product, and a mixed diet of fruits and vegetables were studied in a group of six male patients exhibiting varying degrees of constipation. The patients subsisted on carefully selected diets the fiber contents of which were determined by chemical analysis. The several criteria of laxative action developed in studies on healthy men were used in the present investigation.

In all but one instance, the commercial bran and the processed bran product, when fed in such amounts as to bring the daily fiber intake up to 90 mg per kilogram of body weight, were very efficacious in correcting the constipation, in contrast to fruits and vegetables, which proved to be satisfactory in only two cases. The commercial bran proved to be slightly superior to the processed bran product but was much less palatable and proved difficult to ingest in reasonable quantity, no difficulty whatever was experienced in eating the processed product. It is suggested that the smaller size of the fiber particle in the processed bran product is a factor tending to decrease slightly its laxative value. In the three cases in which satisfactory laxation was not secured when the patient was subsisting on the diet of fruits and vegetables, addition of the processed bran product resulted in the desired improvement.

⁵ Schmidt, E. A. and Strasburger, Julius. *Die Fazes des Menschen*, ed. 3. Berlin: August Hirschwald, 1910. pp. 211-216.

In each of the five cases that presented constipation without any other symptoms, it was observed that the fraction of the fiber of the basal diet and of the fruits and vegetables that remained intact after passage through the alimentary tract was much less than was the case with the healthy men studied in the earlier investigations. It is suggested that the tendency to constipation which these patients exhibited was due to this fact. A diet of common foods that will suffice to promote satisfactory laxation in healthy persons evidently will do so in some of these patients but not in all, and, therefore, the latter require some form of roughage that will resist all decomposition. Both commercial wheat bran and the processed bran product tested in this study were found to be satisfactory sources of fibrous roughage for these patients.

In the one case presenting the picture of so-called irritable colon, fibrous roughage in any form, whether commercial wheat bran, a processed bran product, or fruits and vegetables, was contraindicated. Agar-agar, on the other hand, when fed so as to give a roughage intake of about 50 mg per kilogram daily, gave very satisfactory results, when fed at a 90 mg level of daily intake, it could not be tolerated. This observation in a single case suggests the advisability of further study of the clinical value of agar as a source of roughage.

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DOES THE GUINEA-WORM OCCUR IN NORTH AMERICA?

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The guinea-worm, *Dracunculus medinensis*, has been reported from man in North America in a total of ten published cases. In four of the cases, *D. medinensis* was collected from persons who had been abroad in countries in which guinea-worm is known to be endemic and who either certainly or possibly became infested while abroad. In six other cases the evidence published in connection with the cases indicates that the supposed *D. medinensis* was actually something else. The net result of a consideration of the published literature is a total lack of human cases that can be accepted as originating in the United States.

The four cases of *D. medinensis* infestation reported from the United States with evidence that the infestation was or might have been acquired abroad, are as follows:

Severance¹ reported a case in a white sailor who had been in Mogador, Morocco, six years previously. The worm made its appearance while the patient was en route from New Orleans to New York. The time required for the worms to mature is generally stated to be from nine to fourteen months, but sometimes a considerably longer period elapses before the worm makes its presence known by appearing on the surface of the body. The origin of this case must be considered problematic.

Burst² added two cases in which the patients had recently returned from East India to South Carolina. The first case was that of an Englishman, aged 34, who

had shipped six months previously from a port in India to Liverpool, and a few days after his arrival in England had shipped to Charleston, S. C. While this man was en route between Liverpool and Charleston, the worm made its appearance between the heel and the inner malleolus and was extracted from the lesion, the worm was 16 inches (40 cm) long. In the second case, a Danish seaman, aged 28, had also recently returned from India. In this case the worm made its appearance near the inner malleolus and was extracted, it was 18 inches (45 cm) long. These are evidently valid cases of *D. medinensis*, with infestation acquired abroad.

Francis³ added the fourth case, that of a male black native of the Gold Coast, Upper Guinea, in whom the worms made their appearance while the patient was en route to the Buffalo Exposition for exhibition purposes. The patient had a previous history of having had three worms appear on the feet. While he was in the United States, five worms, from 12 to 26 inches (30 to 65 cm) long, appeared on the feet and ankles. This also is a valid case, with infestation acquired abroad.

The six cases in which the thing reported as *D. medinensis* appears to have been something else are as follows:

Barkan⁴ described a case of a man, aged 30, a native of Adelaide, Australia, who entered a hospital shortly after arriving in California. The patient stated that he had had trouble with his eyes for years. The left eye was found to contain a stationary foreign body which was removed surgically, together with that part of the iris to which it was attached. Subsequent examination of the specimen by Professor Knapp corroborated the physician's diagnosis of *Filaria medinensis*. It now appears probable that this case is a record of the occurrence of *Loa loa*, a more common parasite of the eye, which in the past has at times been confused with *D. medinensis*, the parasite probably being of foreign origin in this case.

A case was reported by Jarvis⁵ in which a small, bristle-like structure, 1½ inches long, was obtained from under the skin of the foot of a patient at Fortress Monroe, Va. The author stated that the worm appeared similar to a "hog bristle." This is probably a case of spurious parasitism.

Walker⁶ reported a case, which he attributed to *D. medinensis*, in a 3 months old child in Arlona (?), Putnam County, Ga. He described the case as follows:

The only child was apparently healthy until about three months after birth, when a small red speck was noticed on the gluteal muscles, at or near the rim of the pelvis, which gradually enlarged to the size of a pea, of oval shape, and in about two weeks after its discovery it began to elongate and to descend the thigh, making perhaps the distance of two lines a day. The cordlike object was well defined under the skin. The worm, as I shall call it, went on in a zigzag course downwards, nearly passing around the limb. The anterior part, for perhaps an inch, was of a bright scarlet color and grew paler upwards. The head had reached the lower half of the leg, I cut across it in several places and one cut was made half an inch from the head, and from this cut there oozed out a few drops of a light, thin yellowish fluid.

³ Francis Edward. Report of a Case of *Filaria Medinensis* Guinea Worm Disease. *Am. Med.* 2: 651-652, 1901.

⁴ Barkan, Adolph. A Case of *Filaria Medinensis* in the Anterior Chamber. *Arch. Ophth. & Otol.* 5: 151-152, 1876.

⁵ Jarvis, N. S. Case of *Filaria Medinensis*, *Dracunculus* or Guinea Worm. *Virginia M. J.* 8: 399-401, 1857.

⁶ Walker, V. S. Flesh Worm (*Filaria Medinensis*) South M. & S. J. 12: 462-463, 1857.

From the Zoological Division, Bureau of Animal Industry, United States Department of Agriculture.

¹ Severance, C. E. History of a Case of the *Dracunculus* or Guinea Worm (*Filaria Medinensis*). *Am. M. Times* 1: 165-166, 1860.

² Burst, I. B. Cases of *Filaria Medinensis*, Guinea Worm or *Dracunculus*, Fr. South Carolina M. A., sixth meeting 1874 pp. 104-108.

The anterior fragment of the worm progressed farther and was repeatedly cut. It remained four months and disappeared. The parents were of filthy habits. This appears to be a case of creeping eruption due to *Ancylostoma braziliense*, a condition known to occur in Georgia.

A similar case was reported by Van Harlingen⁷ in which a man, aged 47, who had never lived outside of Philadelphia, was employed at the time in the custom house examining invoices from foreign countries, he was never in contact with goods imported. According to this report

Some time in September last (four months previously) the patient first noticed a small red papule under the skin of the back of the hand. The lesion gave rise to considerable pruritus but no pain. It soon assumed an elongate form and began to elongate at one end, taking on a serpentine form and pushing along under the skin throwing the epidermis up into a ridge, and showing beneath it like a sinuous red cord.

The worm, for such it appeared to be, progressed slowly over the back of the hand between the index and middle finger and down across the palm. It was five to six inches in length and about an eighth of an inch in breadth. The head of the parasite appeared to be near the radial side and just turning from the palm to the back of the hand. Concluding from the appearance that I had to deal with *Filaria medinensis*, I cut down upon the parasite, hoping to demonstrate its presence and perhaps to remove it. By traction. For some reason or other, probably awkwardness, I failed to find the parasite on two successive occasions.

The sinuous cord finally disappeared. This might have been a case of creeping eruption but it cannot be accepted as a case of *D. medinensis*. The cases reported by Walker and Van Harlingen showed lesions which correspond closely to the lesions reported by Kirby-Smith, Dove and White⁸ and White and Dove⁹ and others for creeping eruption caused by larvae of the hookworm *Ancylostoma braziliense*.

Leidy¹⁰ described a nematode in the collection of the Philadelphia Academy of Sciences labeled "obtained from the mouth of a child." The specimen was $5\frac{7}{8}$ inches long by $\frac{1}{250}$ inch wide at the mouth and $\frac{1}{40}$ inch wide toward the posterior extremity. He named this worm *Filaria hominis-oris* and suggested at the time that it might be the male of *D. medinensis*, his opinion being based on the statement that this parasite was often introduced into this country by the importation of Negro slaves. Leidy¹¹ later confirmed his previous opinion that *Filaria hominis-oris* was *D. medinensis*, after examining a specimen of *D. medinensis* from Africa. In spite of Leidy's opinion, it appears possible that this worm was a specimen of *Gongylonema*, perhaps *G. pulchrum*, as *Gongylonema* is reported from the lips and inner surface of the cheek in man in the United States in several cases, and the brief description of the worm does not preclude this possibility.

Although there appear to be no valid records of *D. medinensis* in man in cases originating in the United States there is nevertheless, evidence that this worm is enzootic in the United States. The guinea-worm is known to occur in various wild and domesticated mammals of the Old World, including the wolf, hunting

leopard, pole cat, dog and horse, and appears to be present in wild carnivores in the United States and Canada. Benbrook¹² has recently reported *D. medinensis* from the fox, and I have studied specimens of *Dracunculus* collected from the following hosts: the silver fox, *Vulpes fulva*, from Iowa (a part of the collection which formed the basis for Benbrook's report), the raccoon (*Procyon lotor*), from Ontario and New York, and the mink, *Putorius vison*, from Nebraska. These specimens appear to be morphologically identical with the guinea-worm of the Old World, *D. medinensis*. The specimens that I have studied vary in size from 16 to 36 cm long by 1.4 to 1.8 mm wide. Records of specimens from India and Africa vary from 16 cm to 4 meters in length, from 45 to 70 cm appears to be the usual length of specimens collected from man and large mammals, but there are numerous records of specimens from 25 to 30 cm long, such specimens being more often found in the small mammals, in human infants or in abnormal locations such as the tongue, finger and penis. One case comparable to mine was reported by Cinotti¹³ from a dog in Egypt, the worm being 36 cm long.

Examination of the North American specimens shows that the head bears the cuticular "helmet" and the mediodorsal and medioventral cuticular projections which are characteristic of the guinea-worm. The tail is conical and curved ventrally, and the larvae agree in every respect with *D. medinensis*. Morphologically on comparison with material from India, the specimens collected from the fox, raccoon and mink appear to be *Dracunculus medinensis*. Moreover, the parasite does not appear to be a recent introduction, since Leidy¹⁴ described a nematode, *Filaria insignis*, from the raccoon, *Procyon lotor*, which appears from his description to be *D. medinensis*, and since the wide distribution of the species, as indicated by the sources of my material, points to the likelihood that the parasite must have been here a long time in order to range from New York to Nebraska and from Iowa to Ontario.

It would appear that our native wild mammals harbor this highly important parasite, *Dracunculus medinensis*, which is most widely known from man in the Old World. It may be that this is a physiologic strain or variety which is not adapted to man or that living conditions here account for the fact that up to the present time it has not appeared in naturally acquired infestations as a parasite of man on this continent. In view of the fact that in the Old World the worm parasitizes both man and lower mammals, the presumption is that it is capable of parasitizing both man and animals in North America and that the freedom of man from infestation in North America is correlated with a difference in habits. In the Old World the prolific sources of infestation appear to be the shallow open wells and ponds in which persons wade and bathe and from which they drink. The worm is said to occur in the lower limbs of 85 per cent of the infested persons, and when such persons wade or bathe the worm discharges myriads of larvae into the water. These larvae develop in small crustaceans, species of *Cyclops*, and when water containing *Cyclops* with infective larvae is drunk by man or animals, the worms develop to maturity in the new host. In the United States and

⁷ Van Harlingen, Arthur. Notes of a Case of *Filaria Medinensis*. M. A. S. Reporter (1849) 50: 417-418, 1858.

⁸ Kirby-Smith, J. L., Dove, W. E., and White, G. F. Creeping Eruption. Arch. Dermat. & Syph. 13: 137 (Feb.) 1926.

⁹ White, C. F. and Dove, W. E. A Dermatitis Caused by Larvae of *Ancylostoma Caninum*. Arch. Dermat. & Syph. 20: 191-200 (Aug.) 1929.

¹⁰ Leidy, Joseph. Description of Three *Filariae*. Proc. Acad. Nat. Sc. Philadelphia (1850-1851) Vol. 5, pp. 117-118.

¹¹ Leidy, Joseph. A Synopsis of Entozoa and Some of Their Ectoparasites Observed by the Author. 110c. Acad. Nat. Sc. Philadelphia (1850-1851) S. 55, 1856.

¹² Benbrook, E. A. *Dracunculus Medinensis* (Linnaeus 1758) Appears in the United States as a Parasite of the Fox, J. Am. Vet. M. A. 3:4: 821-824, 1932.

¹³ Cinotti, F. Su di un caso di *Filaria medinensis* nel cane. Nuovo Ercolani 11: 466-470 (Dec. 31) 1906.

¹⁴ Leidy, Joseph. Contributions to Helminthology. Proc. Acad. Nat. Sc. Philadelphia (1850-1851) 10: 110-112, 1858.

Canada it is not customary for man to drink from the pools in which he bathes or to bathe in the pools from which he drinks. Our water supplies in general are of a sort which is free from contamination of the kind necessary for the propagation of this parasite in man, and it would be only under quite unusual conditions that human infestation with this worm would occur in the United States or Canada. Nevertheless, the presence in these countries of a worm morphologically identical with *D. medinensis* warrants the consideration of physicians in these countries.

SUMMARY

Of ten cases of *Dracunculus medinensis* reported from man in the United States, four are certainly or possibly of foreign origin and six are not cases of *D. medinensis* but apparently are cases of *Loa loa* of foreign origin, of spurious parasitism, and, in one case, possibly *Gongylonema*.

Dracunculus occurring in the fox, raccoon and mink, in Nebraska, Iowa, New York, Pennsylvania (?) and Ontario, is morphologically identical with *D. medinensis*, and probably is *D. medinensis*.

TOTAL GASTRECTOMY FOR CARCINOMA

PHYSIOLOGIC AND CHEMICAL STUDIES DURING A
PERIOD OF TWO YEARS FOLLOWING THE
OPERATION

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Before considering the case which is the main interest of this paper, I wish to review certain aspects of another case.

REVIEW OF PREVIOUS CASE

I first performed total gastrectomy for carcinoma of the stomach in August, 1929. The patient's return to the clinic four months following the total gastrectomy, that is, in January, 1930, gave me an opportunity to make physiologic and chemical studies, which were reported in detail in 1930.¹ A summary of, and comment based on, those studies is as follows:

"In view of the absence of secondary anemia in experimental animals after total gastrectomy, in which more than four years has elapsed since the operation, the question naturally arises whether the cause of secondary anemia in human beings in whom total gastrectomy has been done is the result of local recurrence of the malignant growth or of remote metastasis. The cases reported by Brigham, Moynihan and Mayo are exceedingly interesting in this respect. In Brigham's case, in which the anastomosis was between the esophagus and the duodenum, the patient was well for two years following total gastrectomy, and the normal formula of the blood was not affected. In Moynihan's patient, who lived three years and eight months following total gastrectomy, marked anemia occurred, but evidence of recurrence of carcinoma was not found at post-mortem examination. In a case in which gastrectomy was performed successfully by W. J. Mayo, the patient lived for almost four years, but, before death, marked secondary anemia was found.

"In the case presented here, total gastrectomy was performed successfully for an extensive scirrhus carcinoma of the linitis plastica type. Studies made of the chemical changes in the blood and of the cell count over a period of four months do not reveal any appreciable change in the number of erythrocytes, in the content of the hemoglobin, in the carbon dioxide combining power, or in the concentration of blood chlorides or urea. Evidence of a definite alkaline tide has not been found. This observation is of interest, since it has been recognized that, with the secretion of gastric juice in a normal person, the urine tends to become more alkaline. The data so far, in this case, appear to indicate that the lack of a stomach and of its acid-secreting glands has a definite effect on the morning alkaline tide."

The patient was examined again, May 7, 1930, four months after these comments were made, or eight months after the total gastrectomy. Since the previous article¹ was in type at that time, results of these observations could not be included and are given here. The concentration of hemoglobin was 12 Gm. in each 100 cc. of blood, erythrocytes numbered 4,550,000 and leukocytes 10,100. The percentages of the various types of leukocytes were as follows: lymphocytes, 19.5, large monocytes, 0.5, neutrophils, 71.5, eosinophils, 3.0, and basophils, 0.5. Blood smears appeared normal except for slight deficiency of hemoglobin. Roentgen examination of the thorax and lungs gave negative results. A roentgenogram of the stomach revealed that the esophageal-jejunal anastomosis was free, without evidence of recurrence. No definite masses were felt on abdominal examination, although there were some shotty nodes in the inguinal region. On rectal examination three nodules, 1 by 1 cm. each, were felt on the rectal shelf. I was informed, June 28, 1930, that the patient had died and that the cause of death was uncertain.

Dr. Watkins and Dr. Heck, who have studied the blood of this patient, reported that prior to operation there was hypochromic secondary anemia of moderate degree. It is of interest that for a period of seven months after operation the values obtained in studies of the blood, including morphologic studies, remained practically constant. At the time of the patient's last visit the concentration of hemoglobin was relatively the same as at previous determinations, but there apparently was mild suppression of the bone marrow, as evidenced by reduced erythrocyte count, leukopenia, moderate granulopenia and moderate reduction in the number of reticulated erythrocytes. This picture might be mistaken for early pernicious anemia, but morphologic study of blood smears did not disclose the macrocytosis, poikilocytosis, and right shift of the neutrophils with the thinning and stranding of individual nuclear lobes, such as are seen in pernicious anemia. On the other hand, morphologic features of any primary blood dyscrasia were absent and the morphologic observations of the blood at this time were suggestive of a deficiency type of secondary anemia, which may be caused by inadequate diet, disturbances of metabolism which prohibit proper assimilation of essential food factors, or absence of the normal hormone and enzyme secretion, resulting in improper assimilation of active substances.

FURTHER REPORTS ON A SECOND CASE

About six months after publication of the report previously referred to,¹ I had the opportunity successfully to perform total gastrectomy in a second case.

From the Division of Surgery, the Mayo Clinic.
1. Walters, Waltman. Physiologic and Chemical Studies Following Total Gastrectomy for Carcinoma. J. A. M. A. 95: 102-106 (July 12) 1930.

Some clinical and surgical aspects of this case have been published from time to time² and these aspects will be subordinated here

A man, aged 69, who registered at the clinic, Dec 26, 1930, had had good health until eighteen months previously, when two attacks of generalized abdominal distress had occurred. A considerable quantity of bloody vomitus had accompanied the second seizure. His condition then had improved, and he had resumed his work. Two weeks before he returned to the clinic the distress had recurred after a large meal. Rigid dietary restriction had followed. Mild gaseous dyspepsia had been associated with the distress. Since the onset he had lost 9 pounds (4 Kg).

The patient was undernourished, had slight edema of the ankles and showed marked arteriosclerosis. Erythrocytes numbered 4,070,000 in each cubic millimeter of blood, the quantity of hemoglobin in each 100 cc. of blood was 86 Gm. Analysis of the gastric content revealed fresh blood clots and absence of free hydrochloric acid. Roentgenologic examination disclosed a large polypoid tumor on the posterior wall, in the upper half of the stomach, indistinguishable from a large malignant polyp. December 30, total gastrectomy was done with esophageal-jejunal anastomosis, posterior to the transverse colon, and a number 16 catheter was inserted temporarily in the distal part of the jejunum for the purpose of feeding. This jejunostomy tube was removed thirty-eight days following operation. The entire stomach (approximately 29 cm. in length) was removed. The growth proved to be an adenocarcinoma, graded 4, 15 by 10 by 3 cm. in various diameters without lymphatic involvement. Convalescence was uneventful.

TABLE 1—Results of Examination of the Blood

	12/26/30	3/16/31	3/18/31*	7/14/31	12/7/32†
Hemoglobin	86 Gm. in each 100 cc	54%		9.8 Gm in each 100 cc	9.6 (57%) Gm in each 100 cc
Erythrocytes per c mm	4 070 000	4 070 000	4 430 000	4 340 000	3 840 000
Leukocytes per c mm	9 400	3 700	4 200 or 4 900	5 100	3 900
Lymphocytes per cent		44.5	29.0	37.0	52.0
Monocytes, per cent		6.5	7.5	7.5	10.0
Neutrophils per cent.		47.5	60.0	55.0	36.0
Eosinophils per cent		1.5	2.5	0.5	1.0
Polkilocytosis		Slight	Slight	Very slight	Slight
Anisocytosis		Slight	Slight	Slight	Moderate
Reticulated erythrocytes					0.7%
Polychromatophilla			Slight		Slight
Basophilic stippling					Positive
Basophils per cent			0.5		1.0

* Slight monocytosis moderate deficiency of hemoglobin good regeneration of erythrocytes
† Bleeding time one and a half minutes good regeneration of erythrocytes some mild hypochromasia

I have had an opportunity to reexamine the patient four different times in the last two years in December, 1930 in March and July, 1931 and, most recently, Dec 7, 1932 at which time he returned for study at my request. He was

found to be in excellent condition, with no evidence of recurrence of the carcinoma in any part of the body. Roentgenologic examinations were made of the esophageal-jejunal anastomosis, which was found to be normal and in roentgenologic appearance similar to what it had been on two other occasions subsequent to operation. The patient stated that he felt quite well and was definitely better than at any time since his operation two years previously, or even before that. He had gained 6 pounds (2.7 Kg) in the last two months, his appetite was

TABLE 2—Morning Determination of Alkaline Tide

Time	Volume, Cc		Specific Gravity		pH		Chlorides		
	March 20 1931	Dec 8 1932	March 20 1931	Dec 8 1932	March 20 1931	Dec 8, 1932	March 20 1931, Gm	Dec 8 1932, Gm per 100 Cc	1932 Gm
9 p m to 7 a m	9.0		1.010		6.0		5.70		
11 p m to 7 a m		61		1.018		6.4		0.69	0.42
7 a m to 8 a m	40	88	1.012	1.018	0.4	6.3	0.40	0.83	0.78
8 a m* to 9 a m		15		1.021		7.0		0.63	0.09
9 a m to 10 a m	55	93	1.013	1.011	0.6	6.3	0.38	0.50	0.55
10 a m to 11 a m	70	105	1.013	1.011	0.0	6.4	0.53	0.50	0.02
11 a m to 12 m	75	155	1.015	0.010	6.8	0.2	0.07	0.61	0.95

* 500 cc of water by mouth at 8 a m. Drank water in five minutes

fairly good, he sometimes felt "full in the stomach" shortly after beginning a meal, but this passed off and he was able to continue his meal, the bowels moved fairly regularly and there was no abdominal pain.

He was 71 at the time of this most recent examination. The blood pressure in millimeters of mercury was 132 systolic and 70 diastolic, with a pulse rate of 60 beats each minute. There were no masses to be felt in the abdomen, and on rectal examination the rectal shelf was found to be free from nodules.

Throughout this period of observation of two years, certain special studies have been carried out and a few complications have arisen. These will now be considered.

Studies of the Blood—Results of these investigations are recorded for the most part in table 1.

In July, 1931, chemical studies of the blood disclosed a concentration of urea of 40 mg in each 100 cc. The carbon dioxide combining power varied from 43 to 52 volumes per cent and the blood chlorides were 611 mg in each 100 cc.

Acidity of the Urine and the Alkaline Tide—In commenting on the physiologic effect of loss of the entire stomach in my earlier paper,¹ the study of the acid-base equilibrium in such a case, as evidenced by the presence or absence of an alkaline tide, seemed worthy of consideration. This was due to the fact that with the absence of the stomach and the loss of the acid and chloride secreting properties of gastric glands the question arose as to whether this might not produce a disturbance of the acid-base equilibrium. A study of that case by Dr Keith failed to show definite evidence of alkaline tide. In commenting on this, he stated that this observation was of interest, since it has been recognized that with the secretion of gastric juices in a normal person the urine tends to become more alkaline. The data up to that time (four months after operation) in that case appeared to indicate that the lack of a stomach and its acid secreting glands has a definite effect on the morning alkaline tide.

In the case reported in detail in this paper, Dr Keith has made similar studies, the results of which are presented in table 2. In commenting on the determinations made respectively on March 20, 1931, and Dec. 8, 1932, he noted that there was more marked diuresis on the latter date and that the urine was definitely diluted. There was a suggestion of an alkaline tide in the specimen passed from 8 to 9 a m, but none in the subsequent three specimens. There was no significant change in the excretion of chloride. The only definite change from the examinations on March 20 was a marked output of water,

2 Bannick E. G. Total Gastrectomy. Observations of Two Years on a Case Previously Reported. Proc. Staff Meet. Mayo Clin. 8: 35 (Jan. 4) 1933. Walters, W. L. Follow Up Examination of Two Patients (1) Two and a Half Months Following Total Gastrectomy. (2) Following Removal of a Papillary Carcinoma of the Bladder That Was Associated with an Unusual Renal Lesion. Proc. Staff Meet. Mayo Clin. 8: 157-158 (March 18) 1931. Walters, W. L. and Priestley, J. B. Total Gastrectomy and Other Extensive Cystic Resections in Elderly Patients. Proc. Staff Meet. Mayo Clin. 8: 49-53 (Jan. 28) 1931. Walters, W. L. and Priestley, J. B. and Gray, H. K. Total Gastrectomy. Billroth II Procedures for Extensive Malignant Growths (Lymphosarcoma in One Case) Including Its Application to Elderly Patients. Pyelorectomy for Hemorrhagic Ulcers. Hepaticoduodenostomy for Strictures of the Common Bile Duct. Resection of the Common Bile Duct for Neurofibroma. Vagotomy and Transplantation and Plastic Operations on the Penis in Cases of Ectrophy of the Bladder. Reports of Thirteen Cases. S. Clin. North America 11: 809-825 (Aug.) 1931. Walters, W. L. and Priestley, J. B. and Johnson, H. W. L. Gunshot Wounds of the Abdomen. Cystic (2) Adenocarcinoma of the Esophagus. Tuberculosis of the Upper Segment of a Duplicated Kidney. Total Gastrectomy. Report of Cases. Proc. Staff Meet. Mayo Clin. 8: 429-433 (July 22) 1931.

with dilution. In commenting further, Dr Keith stated that the patient is getting along very well without a morning alkaline tide.

Röntgenologic Studies—March 16 and July 14, 1931, roentgen examinations of the thorax gave negative results. March 16, 1931 and Dec 7, 1932, roentgenograms of the stomach gave evidence that the esophageal-jejunal anastomosis was free and without deformity. The preoperative roentgenograms as well as the roentgenogram of the anastomosis made Feb 7, 1931, have been published previously,³ the present roentgenogram of the anastomosis is similar to the one published.

Complications—March 16, 1931, three months subsequent to operation, the patient returned for reexamination because of a soft mass measuring 6 by 4 cm., above the inguinal ligament on the right side. This mass had been noticed at the patient's dismissal immediately following operation, but the mass apparently had not changed in size. In March, what seemed to be enlarged inguinal nodes were noticed, several of them were removed for microscopic examination, but the changes in them were reported to be inflammatory only. The patient returned, July 14, 1931, and stated that the mass in the right lower quadrant had increased in size and that there was soreness in it at times. He stated that he had not been feeling as well as he formerly had. It was thought advisable to explore the fluctuating mass, which I did, July 16, 1931, through a right McBurney incision. Extraperitoneal drainage was instituted, opening into a cystic mass which contained about 700 to 800 cc of yellowish, milky fluid, without odor. Further exploration was not made, and there appeared to be no gross characteristics of a malignant lesion. A slight amount of similar material continued to drain from this region until October 8, when the patient returned for reexamination. At that time the abdominal sinus was opened and its interior explored with the finger. Nothing abnormal was found. The cavity was curetted, and a strip of iodoform gauze was placed within it. This gauze was removed a few days later and subsequently the sinus healed completely. There has been no further evidence of disturbance in this region. The etiologic factor concerned in the formation of this cystic mass is unknown. Whether it might have been leakage of the milk introduced through the jejunostomy tube during the thirty-eight days subsequent to operation is a matter of speculation. Against such an opinion is the fact that in the three months subsequent to operation the mass had not appreciably increased in size, but in the succeeding four months noticeable enlargement had occurred. The material, however, had the exact appearance of milky fluid.

SUMMARY AND CONCLUSIONS

Physiologic and chemical studies have been made on repeated occasions over a period of two years on the patient whose case is here reported in detail and on whom successful total gastrectomy was performed for an extensive, highly malignant carcinoma. This patient was living and well at the time this paper was written, with no evidences of recurrence or metastasis of the malignant lesion. Physiologic and chemical studies in this case, as well as in another case in which operation was successfully performed, and the patient studied over a period of eight months subsequent to operation, would indicate that in both cases but little change took place in the blood picture from that prior to operation. This applies to the percentage of hemoglobin as well as to the number and morphologic characteristics of the erythrocytes and leukocytes.

As one of the means of determining the effect of the loss of the acid and chloride normally secreted by the stomach, and absent as the result of the total gastrectomy, a study of alkaline tide would seem to indicate that such an alkaline tide was lacking in both cases. There was no change, however, in the excretion of chloride in the urine.

Roentgen studies of the esophageal-jejunal anastomosis revealed no evidence of recurrence over a period of two years in the case reported in detail in this paper and attention is called to an unusual and inexplicable complication, namely, the accumulation of milky fluid in the lower part of the abdomen just above the inguinal ligament, which necessitated incision and drainage seven months subsequent to operation. During the seventeen months subsequent to that time, there was no further evidence of complications.

HEREDITARY DIABETES INSIPIDUS

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AND

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Diabetes insipidus, which was differentiated from diabetes mellitus in 1674 by Thomas Willis, may be defined as a chronic disease characterized by marked thirst and the excretion of large quantities of a pale urine of low specific gravity.

Diabetes insipidus is classified into two types (1) secondary or symptomatic and (2) primary or idiopathic, including the hereditary instances.

Hereditary Diabetes Insipidus

Author	Year	No of Patients	Male	Female	Generations	Consanguinity
Lacombe	1841	8	5	3	2	Absent
Deebrey	1859	5	2	3	2	Absent
Wachsmuth	1863	2	2	0	1	Absent
Reith	1866	2	1	1	1	Absent
Lanceraux *	1869					
Gee	1877	12	0	3	4	Absent
Pain	1879	7	5	2	3	Absent
Orsi	1881	6	5	1	2	Absent
A. Well, Sr	1884	35	19	14 (2?)	6	Present
Clay	1889	3	2	1	1	Absent
Mellraith	1892	9	6	3	3	Absent
Lawritzen	1893	8	5	3	4	Absent
Sasse	1893	8	4	1 (3?)	3	Absent
Martinez	1895	2	2	0	1	Absent
Knöpfelmacher	1905	5	3	2	4	Absent
A. Well, Jr	1908	(See A. Well, Sr)				Present
Ehrmann	1911	3	3	0	4	Absent
Janzen and Brockman *	1921					
Martinez and Navarra	1922	2	?	?	?	Absent
Chase	1927	22	?	?	5	Absent

* Complete reference unavailable.

Since the first description of hereditary diabetes by Lacombe,¹ in 1841, numerous authors² have interested themselves in this peculiar ailment, as indicated in the accompanying table. The classic publications by the

From the Medical Service of Dr. B. S. Oppenheimer, Montefiore Hospital.

This work was done with the aid of a special grant from the Montefiore Hospital.

¹ Lacombe, De la polyurie, Paris thesis, 1841.
² Bauer, J. Konstitutionelle Disposition zu inneren Krankheiten, Berlin, Julius Springer, 1924. Chase, L. A. Hereditary Diabetes Insipidus, Canad. M. A. J. 17:212 (Feb.) 1927. Clay, Three Cases of Diabetes Insipidus in One Family, Lancet 1:1188, 1889. Deebrey, Observation de polyurie, Gaz. d. hop., 1859, p. 46. Ehrmann, R. Berliner klin. Wchnschr. 48:496, 1911. Gee, A Contribution to the History of Polydipsia, St. Bartholomew's Hospital Reports 8:79, 1877. Janzen and Brockman, Hereditary Diabetes Insipidus, Nederl. tijdschr. v. geneesk. 1921 (ref. Deutsche med. Wchnschr., 1921, p. 760). Knöpfelmacher, Diabetes Insipidus bei Kindern München med. Wchnschr., 1905, p. 829. Lanceraux, De la polyurie (diabète insipide) Paris A. Delahaye, 1869. Lawritzen, Hospitalstid., ref. 1, 1893. Martinez, Two Cases of Essential Familial Polyuria, Compt. rend. Soc. de biol. 1895, p. 41. Martinez and Navarra, Zwei Fälle der familiären Form des idiopathischen Diabetes Insipidus mit hypophysenbehandlung, Rev. d. cir. Med. de Cordoba 10:78, 1922 (Kongresszentralblatt 27, p. 363). Mellraith, Notes on Some Cases of Diabetes Insipidus with Marked Familial and Hereditary Tendencies, Lancet 2:767, 1892. Orsi, I. Corrisia clinica VI. Sui individui d'una stessa famiglia colpiti da Idruria Grizz med. Ital lomb. 3:91, 1881. Pain, Notes a propos de quelques observations de polyurie chronique, Paris thesis 1881. Reith, Polydipsia Treatment by Large Doses of Valerian, Improvement, M. Times & Gaz. London 1866, p. 309. Sasse, Ein neuer Fall von hereditärem Diabetes Insipidus, Inaug. Diss., Bonn, 1893. Wachsmuth, Ein Fall von Diabetes Insipidus, Virchows Arch. f. path. Anat. 26:318, 1863.

Weils³ concerning 119 members of a family, 35 of which had diabetes insipidus, are noteworthy.

In several instances of diabetes insipidus in a family under our observation, therapy yielded very gratifying results.

REPORT OF CASES

CASE 1—History—A M., a married woman, aged 33 was born in Vermont and has lived in New York City since 1924.

Her father was known to have had diabetes insipidus, he died of pneumonia at the age of 41. Her mother is 55 years of age, living and well. The patient's paternal grandmother, maternal grandmother and a maternal aunt had diabetes insipidus.

The patient had minor childhood illnesses and has had frequent infections of the upper respiratory tract as an adult. There is a tendency to constipation and temperamental lability. She was operated on for appendicitis in May, 1931. Her menstruation is uneventful.

One child of the patient's first marriage and one of the second have diabetes insipidus. Her fluid intake and output increased approximately twofold during her three pregnancies and reverted to the previous level after parturition. The patient has never had sexual intercourse more frequently than two or three times a month.

Nocturnal and diurnal polyuria, polydipsia and pollakiuria have been present ever since the patient can remember, the fluid intake and output ranging from 8 to 16 liters in twenty-four hours. She feels more comfortable in the winter than in the summer months and has observed that her symptoms were not as marked when she lived in Vermont. She perspires little, even after exertion.

Examination—Save for the presence of small, well circumscribed lipid infiltrations (xanthelasma) at the inner canthus of both lower lids, the physical examination is negative.

The Wassermann reaction of the blood, Jan. 27, 1932, was negative. Chemical analysis of the blood showed sugar, urea nitrogen, uric acid, cholesterol total fats, calcium, phosphorus, chlorides, and total proteins all normal. The sugar tolerance test, January 29, after 50 Gm. of dextrose in 250 cc of black coffee was normal. A blood count revealed no abnormalities. Basal metabolism was normal.

Repeated urine examinations showed a low specific gravity, ranging from 1.003 to 1.006, neutral reaction, and numerous epithelial cells. Albumin and dextrose were absent.

A roentgenogram of the skull was negative. Because hospitalization was impossible, the patient was taught to measure her total fluid intake and output. After a satisfactory control period, trial doses of solution of pituitary were administered. It was found that from 15 to 2 cc of solution of pituitary divided into two doses administered in the morning and before retiring, diminished the fluid intake and output from 12 to 3 or 4 liters and enabled the patient to go through the night without drinking or voiding. Solution of pituitary by nasal spray (0.5 cc. three times a day, the last dose shortly before retiring) was then substituted for the hypodermic injections. The results were equally gratifying. On several occasions when the supply of the drug was exhausted the excessive thirst and polyuria returned, the total fluid intake and output being approximately that prior to the institution of the treatment with solution of pituitary. The patient was advised to increase the evening dose if she had indulged in a very heavy supper, to avoid nocturia. In addition there was a marked decrease in irritability. The patient was under our observation from January to June 1932, the diabetes insipidus syndrome being controlled with nasal sprays of solution of pituitary.

CASE 2—Alfred M., the oldest child aged 14, weighed 11 pounds (5 kg) at birth and was delivered instrumentally. He was breast fed for eight months and he talked and walked between 1 and 2 years of age. In early childhood he had uncomplicated measles and whooping cough. Polyuria, polydipsia, pollakiuria and nocturnal enuresis were first noted at

the age of 5 years. His fluid intake and output averages from 12 to 15 liters in twenty-four hours, the nocturnal polyuria and polydipsia ranging from 3 to 5 liters. The child lives in Vermont with his grandparents, and we have not, as yet, been able to examine him.

CASE 3—History—Fredrick M., aged 7 years, weighed 7 pounds (3.2 Kg) at birth and was delivered instrumentally. He was breast fed for two months and then weaned because of unaccountable irritability and apparent dissatisfaction with the mother's milk. For the past two years the child has had nocturnal and diurnal polydipsia, and enuresis, the latter of late being nocturnal only.

Examination—Physical examination was negative.

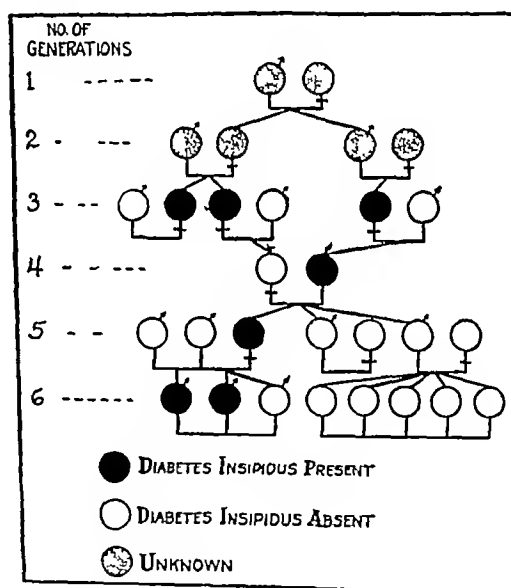
Laboratory Data—Chemical analysis of the blood, Feb 17, 1932, showed the sugar, urea nitrogen, cholesterol, chloride and calcium all normal. The urine was normal save for low specific gravity, 1.002 to 1.006.

A roentgenogram of the skull showed slight exaggeration of the normal digital markings. The sella turcica was normal. There was cloudiness of both antrums.

Pituitary therapy (0.5 cc of solution of pituitary) administered by nasal spray before retiring diminished the threshold of water exchange and eliminated enuresis.

COMMENT

Secondary or symptomatic diabetes insipidus may be associated with pathologic anatomic lesions at the base of the brain involving the pituitary gland, the struc-



Geneological table of our patients with hereditary diabetes insipidus. The cases described in the text are of the fifth and sixth generations.

tures of the midbrain or, more rarely, both. Hypophyseal lesions are most frequent, the processes occasionally extending beyond the confines of the posterior lobe to the so-called pars intermedia and even to the anterior lobe.⁴ The exact location of the lesion in experimentally produced diabetes insipidus is still a question. However, it is generally believed that the causative factor of diabetes insipidus is a disturbance in the pituitary-midbrain system (neurohypophysis, infundibulum, tuber cinereum and mamillary bodies).

The etiology of primary or idiopathic diabetes insipidus is unknown. Necropsy reports in the hereditary type are unusually rare. Marinesco² mentions proliferation of the lining epithelium of the fourth ventricle with the formation of cellular excrescences. His patient however, died of tuberculous meningitis, which may well account for the pathologic manifestations.

¹ Weil A. Ueber die hereditäre Form des Diabetes Insipidus. Arch. f. path. Anal. 45: 70, 1884. Weil A. Jr. Ueber der hereditäre Form des Diabetes Insipidus. Deutsches Arch. f. klin. Med. 93: 150, 1913.

⁴ Kraus E. J. in Henke F. Lehrbuch Handbuch Der Speziellen Pathologie und Anatomie und Histologie Drüsen mit Innerer Sekretion vol. 8.

present One of our cases, as well as an instance described* by Fitcher,⁵ presented lipoid infiltrations of the eyelids (xanthelasma) One of us,⁶ in a previous communication, pointed out that these deposits may simply be a beauty defect, but at times they are objective signs of a severe disturbance in lipoid metabolism (lipoidgranulomatosis) in which one of the clinical pictures (type Hand-Schüller-Christian) has as one of its cardinal symptoms the diabetes insipidus syndrome

Hereditary diabetes insipidus is most frequently detected in infancy or early childhood Longevity is common in those surviving infancy, three of Weil's patients living to the age of 83, 87 and 92 years

Hereditary diabetes insipidus is somewhat more common in males than in females

Race and climate have no effect on its occurrence

Consanguinity (intermarriage of cousins) was present in Weil's cases and in our own

Hereditary diabetes insipidus may be transmitted through the maternal or paternal side to either male or female children Sometimes one generation may be skipped (Wachsmuth, Reith, Clay, McIlraith) We are unable to agree with Liebmann,⁷ who believes that the transmission is similar to that of hemophilia Analysis of the instances of hereditary diabetes insipidus (Pain, Weil and Knopfmacher) supports our contention

SYMPTOMATOLOGY

In order to appreciate the symptomatology of hereditary diabetes insipidus, particularly the differences in infants and adults, it is necessary to consider the rôle of the kidneys in the regulation of water balance This has been extensively studied by Veil⁸ whose monograph on the subject appeared recently

According to Veil, the kidneys in infants play a comparatively minor rôle in the regulation of water exchange, the important factors being the skin and the gastro-intestinal tract From 17 to 56 per cent of the water is eliminated through the skin of the infant in the form of insensible perspiration, including sweat In older children, this is decreased to from 15 to 32 per cent To their function of excretion of metabolic wastes, at about 2 years of age the kidneys add the function of regulation of water balance In addition, at this age, the nervous enervation of the bladder and kidneys has developed, as evidenced by attempts at voluntary control of the bladder It is thus quite evident that the symptomatology in infancy and adult life varies considerably

Symptoms in Infancy—Polyuria is never present at birth Its subsequent occurrence, however, can be readily predicted by parents acquainted with the disease, as in the instances described by Weil in which the parents were able to tell by the sixth month whether or not the infant would be a "drinker" The important signs are 1 Dissatisfaction with breast milk 2 Marked restlessness McIlraith records two instances of peculiar "infantile fits" 3 Nocturnal wakefulness relieved only after drinking water (Gee, Pain, McIlraith) Liebmann emphasizes the frequency of diarrhea

Symptoms in Childhood and Adult Life—At about 2 years of age, paralleling the transference of the function of regulation of water exchange from the skin

and gastro-intestinal tract to the kidneys, the symptoms associated with the syndrome of diabetes insipidus appear Thus there are nocturnal and diurnal polyuria, polydipsia, often pollakiuria, and enuresis, the latter at first diurnal and nocturnal, and subsequently nocturnal only Enuresis may persist even to adult life According to Weil, the symptoms of hereditary diabetes insipidus are maximum in extent between the ages of 20 and 30, diminishing after 50 The thirst is sometimes unusually marked, the patient drinking as much as a liter of water an hour Pain² noted the occurrence of death after an excessive drinking bout Adolescence and commencement of sexual relationships often advantageously affect the symptoms

It is of interest to note that Fitcher observed a diminution of libido in patients with diabetes insipidus Although excessive thirst and polyuria may be the sole symptoms, the patients frequently complain of dryness of the mouth, a thick tenacious sputum which is difficult to bring up, coldness of the hands and feet, pains in the joints, a sense of pressure in the head, hot flushes, a prickly sensation of the skin, and constipation The appetite is fairly good as a rule, large quantities of fluid being taken with the meals to moisten the food Objectively, the patients sometimes have a high forehead, a marked temperature lability, and a tendency to bradycardia The skin is dry and coarse, and there is very little perspiration even after vigorous exercise One of Knopfmacher's patients had congenital ichthyosis In addition, there may be a marked distention of the bladder Ehrmann² and McIlraith² note that the children are occasionally backward Imbeciles are also described Roentgenograms of the skull and the region of the sella turcica show no abnormalities (Chase²) In one of our cases (case 3), exaggeration of the digital markings of the skull was present

During febrile bouts the polyuria and polydipsia may completely disappear, only to return after convalescence During the course of pregnancy there is an aggravation of the symptoms, with a reversion to the former level after parturition Patients with hereditary diabetes insipidus are not more than usually prone to intercurrent illnesses³

Chemical studies are reported in a few instances of hereditary diabetes insipidus In our cases the observations are in general within normal limits Gibson, Magers and Dulaney,⁹ using the same technic, secured sugar tolerance curves resembling those of diabetes mellitus in six patients with diabetes insipidus

Under normal circumstances the urinary output varies with the sodium chloride output In diabetes insipidus, according to Lichtwitz,¹⁰ there is a complete dissociation of sodium chloride and water output

THERAPY

Because of the occurrence of symptoms in early childhood and their persistence throughout adult life, patients with diabetes insipidus become so accustomed to the associated discomforts and inconveniences, which they have accepted as their lot, that they often do not seek relief Patient 1 insisted that quenching her thirst was her greatest delight in life and only agreed to submit to our investigation provided we did not limit her water intake As emphasized by Snell and Rowntree¹¹ and

5 Fitcher T. B. Diabetes Insipidus With a Report of Five Cases, Johns Hopkins Hosp. Report 10, 1901-1902

6 Chester William Ueber Lipoidgranulomatose Virchows Arch. f. path. Anat. 279: 561, 1930

7 Liebmann Ueber Diabetes Insipidus bei Kindern, Inaug. Diss., Berlin Gustav Schade, 1888

8 Veil Die physiologie und pathologie des Wasserhaushaltes, Ergebn. d. inn. Med. u. Kinderh. 23: 648, 1923

9 Gibson, R. B. Magers, E. J., and Dulaney, Herman. Sugar Curves in Diabetes Insipidus, Endocrinology 11: 341 (July-Aug.) 1927

10 Lichtwitz, L. Klinische Chemie, ed. 2 Berlin, Julius Springer, 1930

11 Snell A. M. and Rowntree, L. G. Clinical Manifestations of Water Intoxication in a Case of Diabetes Insipidus with Some Notes on the Disturbances of Blood Composition and Vasomotor Mechanism, Endocrinology 11: 209 (May-June) 1927

by Weir, Larson and Rowntree,¹² water intoxication may occur, subsequent to restriction of the fluid intake. It is interesting to note that when fluids were withheld for a period of three hours in conjunction with laboratory studies in our patient, restlessness, irritability, hot flushes and headache appeared. After one such "water fast" of three hours, A. M. drank 2 liters of water within a period of half an hour.

According to Veil, a restriction of protein and salt in the diet diminishes the thirst and polyuria. Reith² reported improvement in the clinical picture with large doses of valerian. Improvement followed lumbar puncture in one instance.¹³ Cold baths sometimes relieve the thirst.

Since von den Velden¹⁴ used an extract of the pituitary gland in the treatment of diabetes insipidus in 1913, various posterior lobe derivatives have proved effective in this condition. An exception is the frequent failure of treatment with solution of pituitary in post-encephalitic diabetes insipidus (Snell and Rowntree). In Turner's¹⁵ case, a child, aged 6, treatment with solution of pituitary was effective only after the fluid intake was diminished. Weir, Larson and Rowntree¹² emphasize the possibility of water retention subsequent to pituitary therapy with symptoms of water intoxication. Chase and Mettel¹⁶ report a gain in weight following treatment with solution of pituitary. This was not present in our cases.

Solution of pituitary by intranasal spray, once the difficulties in technic have been overcome, yields excellent results and avoids the discomfort of repeated hypodermic injections. This method was first used by Blumgart¹⁷ in 1922. The results are sometimes better than with the subcutaneous method of administration. This, as Blumgart mentions, is probably due to the rapid absorption of the solution of pituitary in virtue of the direct communication of the lymphatics of the nasal mucosa with the subarachnoid space. At no time has there been any irritation of the nasal mucosa or any other untoward symptom resulting from the treatment with solution of pituitary. The doses of solution of pituitary, effective at the time the therapy was instituted, are just as effective after a period of five months.

PROGNOSIS

The prognosis in hereditary diabetes insipidus after infancy, as evidenced by the reports of Weil, is excellent. It is not uncommon for these patients to live to the seventh, eighth and ninth decades.

CONCLUSIONS

1 Several members of a family with hereditary diabetes insipidus were studied.

2 In the two available members, solution of pituitary, administered by hypodermic injection and nasal spray, greatly lowered the level of water exchange and completely controlled the diabetes insipidus syndrome.

¹² Weir J. F., Larson E. E. and Rowntree L. G. Studies in Diabetes Insipidus. Water Balance and Intoxication. Arch. Int. Med. 29: 306 (March) 1922.

¹³ Herrick J. B. Report of a Case of Diabetes Insipidus with Marked Reduction in the Amount of Urine Following Lumbar Puncture. Arch. Int. Med. 10: 1 (July) 1912.

¹⁴ Von den Velden R. Die Nierenwirkung von Hypophysenextrakten beim Menschen. Berlin Klin. Wchnschr. 50: 2083. 1913.

¹⁵ Turner J. H. A Case of Diabetes Insipidus in a Child. Arch. Pediat. 45: 433 (July) 1928.

¹⁶ Mettel Howard. Antidiuretic Effect of Solution of Pituitary Diuretic Intranasally in a Case of Diabetes Insipidus. Am. J. Dis. Child. 25: 142 (Aug.) 1929.

¹⁷ Blumgart H. L. Antidiuretic Effect of Pituitary Extract Applied Intranasally in a Case of Diabetes Insipidus. Arch. Int. Med. 29: 508 (April) 1922.

CHOLECYSTOGRAPHY ITS CLINICAL EVALUATION

A STUDY OF 2,070 CASES

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The present article is a review of our experience with intravenous cholecystography in the diagnosis of gallbladder disease in 2,070 patients over a period of five years. In the numerous articles on cholecystography which have appeared, the test seems to have been carried out chiefly on patients with symptoms of gallbladder disease. Consequently, the statistics given do not indicate the reliability of the method *per se* but rather the reliability of the method when used in conjunction with a clinical diagnosis of gallbladder disease. In our clinic, the dye has been given in a somewhat routine fashion to a wide variety of patients, although the majority of them have been referred to the gastrointestinal service because of some type of abdominal distress. Tetiothalein sodium-N N R or, in a small group, phenetiothalein sodium-N N R, has been used, the technic being that first suggested by Case,¹ in which the dye is given late in the afternoon, followed by a small fat-free meal. No more food or liquid is then taken into the stomach until after films have been made the following morning. Two exposures are taken at about a thirty minute interval, a fatty meal is then given and a third film made thirty minutes later.

TABLE 1—Three Groups of Visualization

Group		Number	Per Cent
1	Good visualization with no evidence of stone	1,398	67.6
2	Stones demonstrated regardless of the type of visualization	192	9.2
3	Faint visualization and nonvisualization with no evidence of stone	480	23.2
Total		2,070	100

For the purpose of analysis, the cholecystographic diagnoses have been arbitrarily divided into three groups, as shown in table 1.

Approximately two thirds (1,398) of the cases fall into the first group, that of good visualization of the gallbladder without stone. The corresponding clinical diagnoses are given in table 2.

In only thirty-five of these is there a history suggestive of biliary disease. This small group deserves especial consideration. The symptoms are very suggestive of gallbladder disease but the gallbladder visualization is normal. In seven of these, cholecystectomy has been performed. A careful pathologic and clinical analysis of these seven cases has revealed that fairly definite pathologic evidence of cholecystitis is present in only one, whereas in six the gallbladder seems normal both grossly and microscopically. It must be admitted that considerable difference of opinion exists as to what constitutes an anatomically normal gallbladder. We have taken the view that the presence of occasional collections of round cells in the wall are not abnormal, since they are found in prac-

From the Department of Medicine, University of Chicago.
Read before the Central Society for Clinical Research, Chicago,
Nov. 4, 1932.

¹ Case J. T. Evaluation of Cholecystography, J. A. M. A. 92: 291 (Jan. 26) 1929.

tically all gallbladders. On the other hand, marked leukocytic infiltration with or without an increase in connective tissue in the wall has been considered as definite evidence of cholecystitis. When judged in this manner, only one of the seven can be considered as

cholesterol stone. Reexamination would probably have demonstrated the stones in both instances. The second group consists of 192 cases in which stones have been demonstrated cholecystographically. Of these, 83 (43.2 per cent) are positive shadows indicating calcium containing stones, and 109 (56.8 per cent) are negative shadows of nonopaque stones in gallbladders with faint or good visualization. Fifty-seven of these cases have come to operation or autopsy, as shown in table 3. The diagnosis of stone on the basis of positive shadows has been correct in all of the thirty cases, an accuracy of 100 per cent. In all the twenty-eight instances of negative shadows interpreted as nonopaque stones, cholelithiasis has been found in twenty-seven, an accuracy of 96.4 per cent. In the one normal case, the x-ray report had been good visualization with doubtful nonopaque stone. This illustrates the difficulty encountered occasionally even by the experienced observer in differentiating between gas bubbles in the intestine and the negative shadows of nonopaque stones. The chief difficulties encountered by us have been in the third group of 480 cases (23.2 per cent of the total), comprising 310 instances of nonvisualization and 170 of faint visualization without evidence of stone. The diagnosis has been checked anatomically in 102 of

TABLE 2—Clinical Diagnoses in 1,398 Cases of Good Visualization of the Gallbladder with No Evidence of Stone

Disease	No of Cases	Disease	No of Cases
Achylia gastrica	3	Hypert thyroidism	2
Aerophagy	7	Hysteria	1
Angina pectoris	5	Intercoastal neuritis	3
Angioneurotic edema	1	Jejunal ulcer	1
Anxiety neurosis	1	Latent syphilis	5
Arteriosclerosis, generalized	3	Malnutrition	6
Bowel distress (colitis)	538	Menopause	2
Brain tumor	2	Migraine	21
Carcinoma of colon	2	Miscellaneous	145
Carcinoma of pancreas	1	Neoplasm of liver	3
Carcinoma of stomach	6	Nervous vomiting	5
Catarrhal jaundice	8	Neurasthenia	2
Cervical polyp	1	No diagnosis	82
Cholecystitis	28	No organic disease	81
Cholelithiasis	7	Obesity	8
Chronic appendicitis	4	Ovarian cyst	3
Chronic arthritis	12	Paroxysmal tachycardia	2
Cirrhosis of liver, atrophic	1	Periculous anemia	8
Colloid goiter	1	Pregnancy	2
Constipation	11	Psychoneurosis	25
Cystocele and rectocele	2	Pulmonary tuberculosis	11
Diabetes mellitus	5	Rectal prolapse	1
Diverticulosis of colon	5	Renal colic	1
Duodenal ulcer	209	Rheumatic heart disease	6
Dysmenorrhea	2	Rumination	1
Empyema	1	Sacro iliac strain	3
Endocervicitis	5	Salpingitis	5
Essential hypertension	6	Tuberculosis	2
Gastric neurosis	3	Tuberculous peritonitis	1
Gastric ulcer	14	Ulcerative proctitis	1
Gastro enteritis	1	Upper respiratory infection	1
Herpes zoster	3	Uterine fibroids	3
Hydronephrosis	2	Ventral hernia	4

definite cholecystitis. Clinically, it is noteworthy that only partial relief has been obtained in four cases and no relief whatever in two. One patient has not been traced. It seems probable, therefore, that the clinical diagnosis of cholecystic disease is in error in the great majority of the cases in this group and that the cholecystographic observations are correct.

It is, of course, entirely possible that asymptomatic cholelithiasis may have been present in a portion of these 1,398 cases, even though a good visualization of the gallbladder without evidence of stone was obtained. Shay² has reported such observations. At the present time, two mistakes of this type are known to have been made in our series. In one of these the report was that of good visualization, but the patient had breathed in all of the films so that the shadow was not clear. Later, she had an attack of acute gallbladder colic,

TABLE 3—Diagnosis at Operation in Cases in Which Stones Were Demonstrated by Cholecystography

Cholecystographic Diagnosis	Stones Found at Operation or Autopsy	No Stones at Operation	Accuracy, per Cent
Calcified stones (positive shadows)	30	0	100
Nonopaque stones (negative shadows)	27	1	96.4
Total	57	1	98.3

operation was done as an emergency measure, and a gangrenous gallbladder containing one large stone was found. In the second case, the report was that of good visualization with a questionable nonopaque stone. The patient presented no evident gallbladder symptoms at the time of examination but was later subjected to operation. The gallbladder was found to contain one

TABLE 4—Diagnosis at Operation in Cases Giving Clinical Evidence of Biliary Disease and Faint or No Visualization of the Gallbladder by Cholecystography

Diagnosis at Operation	Faint Visualization		Nonvisualization		Total	
	Num ber	Per Cent	Num ber	Per Cent	Num ber	Per Cent
Cholelithiasis	5	41.7	71*	78.0	76	74.5
Cholecystitis	2	10.0	6	6.7	8	7.3
Carcinoma of gallbladder			3	3.3	3	2.9
Sarcoma of gallbladder			1	1.1	1	1.0
Carcinoma of pancreas †			1	1.1	1	1.0
Carcinoma of stomach †			1	1.1	1	1.0
Cirrhosis of the liver	2	10.0			2	2.0
Tuberculous peritonitis †			1	1.1	1	1.0
Gallbladder normal, no organic disease found	3	25.0	6	6.7	9	8.8
Total	12	100	90	100	102	100

* Two of these diagnoses were confirmed at autopsy instead of at operation.
† Gallbladder was reported normal at operation but was not removed.

these with the results shown in table 4. It should be emphasized that the basis for operative intervention in this group has been the clinical diagnosis together with the cholecystographic observations, not the latter alone. Seven (58.3 per cent) of the twelve patients with a faint visualization were found to have cholecystic disease, whereas three (25.0 per cent) had definitely normal gallbladders. In this small group the accuracy of the clinical diagnosis plus the faint visualization was only 58.3 per cent with a definite error in 25.0 per cent. In the group, on the other hand, in which the diagnosis was based on the clinical evidence plus a nonvisualization of the gallbladder, eighty-one (90 per cent) of the ninety patients were found to have an abnormal gallbladder, three had some other type of intra-abdominal disease and six had no demonstrable lesion either in the gallbladder or elsewhere. In these six cases, three of which will be reported in detail, the gallbladder was removed and found to be normal microscopically. In this series, then, the accuracy of the clinical diagnosis of gallbladder disease, when coupled with a nonvisualization of the gallbladder, is 90 per cent with a definite error of 6.7 per cent, some other disease being present in three cases (3.3 per cent): carcinoma of the stomach, carcinoma of the pancreas, and tuberculous peritonitis.

2. Bockus, H. L., Shay, Harry, Willard, J. H., and Pessel, J. F. Comparison of Biliary Drainage and Cholecystography in Gallstone Diagnosis, J. A. M. A. 96: 311 (Jan. 31) 1931.

In the last instance, that of tuberculous peritonitis, the dye had been given on two separate occasions with a questionable faint visualization the first time and nonvisualization the second

There have been 124 cases of faint visualization and 119 of nonvisualization in which an anatomic check of the diagnoses has not been available and in which there has been no clinical evidence of disease of the biliary

TABLE 5—Results of Repetition of the Test in Nonoperative Cases of Faint Visualization of the Gallbladder with No Clinical Evidence of Disease of the Biliary Tract

Clinical Diagnosis	Results of Second Examination			Total
	Nonvisualization	Faint Visualization	Good Visualization With out Stone	
Bowel distress (colitis)			3	3
Duodenal ulcer			3	3
Gastric ulcer	1	—	—	1
Total	1 (14%)	—	6 (86%)	7 (100%)

tract, the various diagnoses being similar to those given in table 2. It seems reasonable to assume, however, that the accuracy of the diagnosis is not higher and probably is very much lower than that found in those cases in which operation was done because of the combined clinical and cholecystographic evidence, i. e., 58.3 per cent in the cases of faint visualization and 90 per cent in those of nonvisualization.

In thirty-one of these cases, the accuracy of the cholecystographic diagnosis has been tested by a repetition of the examination, the results being shown in tables 5 and 6. All of the cases of faint visualization included in table 6 have given a good visualization on the second examination except one, which has resulted in nonvisualization. If it is assumed that this one case is really one of cholecystitis and that the others represent normal gallbladders, the accuracy of a faint visualization in the diagnosis of cholecystic disease in this group is only 14 per cent, and the error 86 per cent.

TABLE 6—Results of Repetition of the Test in Nonoperative Cases of Nonvisualization of the Gallbladder with No Clinical Evidence of Disease of the Biliary Tract

Clinical Diagnosis	Results of Second Examination			Total
	Nonvisualization	Faint Visualization	Good Visualization With out Stone	
Arthritis of spine		1		1
Bowel distress (colitis)	2		1	3
Chronic cystitis	1			1
Duodenal ulcer	3	3	4	10
Gastric ulcer			1	1
Ilejunal ulcer			1	1
Nervous vomiting			1	1
No organic disease		1		1
Postoperative adhesions	1			1
Total	7 (29.2%)	4 (37.5%)	5 (33.3%)	24 (100%)

When the same criteria are used, the results of repetition of the test in the cases of nonvisualization of the gallbladder without clinical evidence of disease of the biliary tract shown in table 6 the accuracy of a nonvisualization alone is only 29.2 per cent, 37.5 per cent are doubtful, and 33.3 per cent are definitely incorrect.

REPORT OF CASES

In order to illustrate and emphasize the danger of relying entirely on the cholecystographic examination,

three of the cases mentioned are herewith presented in detail.

CASE 1—A single white woman, aged 23, admitted with the complaints of mild distress in both lower quadrants of the abdomen of three years' duration, and of constipation for two and one-half years, had had irregular attacks of pain localized to the right epigastrium associated with nausea and vomiting, for three months previous to admission. These had usually appeared a few minutes after eating, had been so severe that they caused her to double up and cry, and had lasted from a few minutes to several hours. The physical examination was essentially normal except for rather generalized abdominal tenderness. Routine analysis of the blood, urine, stool and gastric contents was negative. Cholecystographic examination, Dec. 2, 1929, was reported as nonvisualization with no evidence of stone. This was repeated, December 16, and again resulted in nonvisualization. The attending physician's note, December 18, reads as follows: "The clinical diagnosis involves a difficult differentiation between functional bowel distress and gallbladder disease. The distress is suggestive of cholecystitis although it is not localized to the gallbladder region. Two intravenous Graham-Cole tests have failed to visualize the gallbladder. On the basis of the above, I believe cholecystectomy is indicated but suspect that it will not give complete relief from the distress." A cholecystectomy was performed, December 26. The operative and pathologic reports state that the gallbladder was essentially normal. Ten days after discharge the patient was seen in the outpatient clinic and the following note appears on her chart: "Patient returns saying that she has the same pain as before the operation." Following the institution of a bland, low-residue, nonlaxative diet, the distress disappeared.

CASE 2—A married white man, aged 44, entered the clinic complaining of distress in the upper abdominal tract of fifteen years' duration, which bore the typical ulcer relationships to food taking. The roentgenologic examination revealed a frank duodenal ulcer and a nonvisualization of the gallbladder. Because the history was that of ulcer and not of cholecystic disease, he was placed on medical ulcer management, which he followed only fairly well after his discharge from the hospital. Nearly two years later his ulcer distress reappeared and he reentered the hospital. At this time he stated that, in addition to the ulcer distress, he had had two episodes of severe night pain. These attacks occurred after eating heavy midnight suppers, one six weeks and the other four weeks previous to admission. The distress was widespread across the epigastrium, radiated through to the back, was so severe that he was doubled up with pain, and kept him awake most of the night. For a week previous to admission there was considerable nausea and vomiting. Physical examination revealed tenderness in the epigastrium and right upper quadrant. Roentgenologic examination at this time showed a duodenal ulcer with high grade stenosis and again revealed nonvisualization of the gallbladder. At operation a few days later a stenotic ulcer was found but the gallbladder was so perfectly normal grossly that the surgeon was unwilling to remove it. Since the operation there has been no return of the distress.

CASE 3—A married white woman, aged 27, admitted to the clinic, complained of anorexia, frequent nausea, vomiting, distress in the upper abdominal tract immediately after eating and constipation requiring cathartics, all present for six years. Domestic difficulties had caused considerable emotional disturbance and had resulted in a separation from her husband six months previously. A short period of dietary treatment had resulted in no improvement. Attacks of abdominal pain had soon appeared located at first in the right lower quadrant, then in the left lower quadrant, in the epigastrium and occasionally in the right upper quadrant, variable in nature, but frequently so severe that opiates had been required. She was admitted to the hospital during an attack of pain in the right lower quadrant radiating into the right side of the vulva. Physical examination was essentially negative except for generalized abdominal tenderness, especially in the two lower quadrants, the right upper quadrant and the epigastrium. The temperature was normal, the white blood count was 11,600. Urinalysis was normal except for the finding of a few red blood cells.

Morphine was required to relieve the pain, and the following morning the attack was found to have subsided completely. Subsequent urologic examination failed to reveal any evidence of disease in the urinary tract.

Cholecystographic examination, when the patient was first seen, had revealed nonvisualization of the gallbladder. This was repeated two months later with the same result. In view of the complete absence of objective evidence of disease elsewhere, the patient was referred to surgery for cholecystectomy, although it was recognized that the clinical picture was not typically that of biliary disease. Examination of the gallbladder showed it to be normal both grossly and microscopically. The patient remained symptom free for about six weeks after her discharge from the hospital and then returned to the

TABLE 7—*Diagnostic Value of a History of Colic as Compared with Cholecystographic Data*

Diagnosis at Operation	History of Colic			Cholecystographic Observations				
	Present	Absent	Total	Stones Demonstrated	Visualization			Total
					None	Faint	Good	
Cholelithiasis	118 90.1%	13 9.9%	131 100%	53 42.0%	69 52.7%	5 3.8%	2* 1.5%	131 100%
Definite cholecystitis with out stone	7 77.8%	2 22.2%	9 100%		6 66.7%	2 22.2%	1 11.1%	9 100%

* Errors due to poor technic in one instance and incorrect interpretation in the other.

outpatient department, stating that the nausea, vomiting and mild abdominal distress had returned. Strict management of the intestinal distress was then instituted with only partial relief of the distress.

It seems to us necessary to conclude that in each of these three cases the gallbladder was normal even though it was not visualized in either of two examinations.

It has been implied in this paper that, aside from the actual demonstration of stone, cholecystographic evidence of cholecystic disease is of the greatest value when it confirms the clinical diagnosis. It thus becomes of interest to compare the frequency of biliary colic with that of positive cholecystographic evidence in cases in which operation reveals the presence of gallbladder disease. The results are shown in table 7.

When stones were present, colic was recorded in 90 per cent of the cases and positive cholecystographic evidence in 94.7 per cent.

COMMENT

The diagnostic value of cholecystography seems quite clear in certain respects. The percentage of accuracy is probably above 98 when a good visualization of the gallbladder is found and no stone shadows are seen. On the other hand, an apparently normal gallbladder occasionally shows a faint visualization or none at all. The actual demonstration of opaque or nonopaque stones is the most conclusive evidence of cholelithiasis.

The greatest difficulty has been encountered in evaluating faint visualization or nonvisualization of the gallbladder. From the clinical standpoint, it is advisable to consider seriously the cholecystographic report of a faint or a total absence of visualization of the gallbladder only if it corroborates the clinical history. This is illustrated by the following figures. When the diagnosis of gallbladder disease was based on a faint visualization together with the clinical history, it was found correct at operation in 58.3 per cent of the cases, when based on a faint visualization alone, it was probably correct in only 14 per cent of the cases. Similarly, when the diagnosis of cholecystic disease was made

from nonvisualization together with the clinical history, it was later proved anatomically to be correct in 90 per cent of the cases, whereas nonvisualization in the absence of clinical symptoms was proved by repetition of the test to be incorrect in at least 33.3 per cent of the instances.

In proved cases of cholelithiasis, a history of biliary colic was encountered with almost the same frequency as was cholecystographic evidence of gallbladder disease.

CONCLUSIONS

1 A good visualization of the gallbladder by cholecystography with no evidence of stones indicates a normal gallbladder in a very high percentage of the cases. Exact figures as to its accuracy are difficult to give.

2 The accuracy of diagnosis when stones are demonstrated as positive or negative shadows approaches 100 per cent.

3 The accuracy of a faint visualization, when combined with a clinical history suggestive of biliary disease, is 58.3 per cent, that of nonvisualization when combined with a positive clinical history, 90 per cent.

4 In the absence of a clinical history suggestive of gallbladder disease, the accuracy of a faint visualization is less than 14 per cent, that of nonvisualization, considerably less than 66.6 per cent.

5 In the cases in which cholecystic disease was found at operation, a history of colic was noted almost as frequently as was cholecystographic evidence of gallbladder disease.

SODIUM CARBONATE (MONOHYDRATED)
IN THE TREATMENT OF VERNAL
CONJUNCTIVITIS

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I advocate the use of sodium carbonate in solution, 5 and 10 grains to the ounce of water (0.3 and 0.65 Gm. to 30 cc.), instilled three drops, four times daily, during the active stages of vernal conjunctivitis, both limbic and palpebral. As a supplement, the eye should be irrigated with cold boric acid solution by means of an eye cup, seven times daily.

Having proved that vernal conjunctivitis is an ocular manifestation of an allergy due principally to dusts and pollens, and having observed that desensitization by means of dusts and pollens does not always effect immediate relief, I¹ came to the conclusion that the avenue of approach in the treatment of this disease would be to render inert the exciting agents that enter the eye, or at least to remove them from the eye in such quantities as to minimize the degree of contact and thus keep the patient comparatively free from the clinical symptoms of this disease.

I have described on previous occasions the characteristic chewing gum mucus, which is seen in no other ocular disease. The patients invariably state that the itching, which is the most distressing symptom, is relieved after rubbing the eyes and removing what they call long, stringy "pus." This mucus is not readily removed in its entirety except by mechanical means with an applicator tipped with cotton, about which it is wound by rolling the applicator between the fingers.

Read before the Ophthalmological Section, College of Physicians, Philadelphia, Dec. 15, 1932.
¹ Lehrfeld, Louis. Vernal Conjunctivitis. Arch. Ophth. 8: 380 (Sept.) 1932.

It is found to be continuous in structure and bound down in the crevices between the follicles in the palpebral type of vernal conjunctivitis. The limbic type, as is well known, has very little mucus.

Microscopic examination of this discharge of the eyes reveals that it consists of mucus containing polymorphonuclear leukocytes, mononuclear leukocytes, eosinophils and epithelial cells.

Realizing that itching is relieved on removal of the mucus, I decided that the treatment should be directed toward rendering this mucus soluble so that it may be readily washed from the eyes. After experimenting over a long period as to the solubility of this mucus, using various strengths of acetic acid, hydrochloric acid, sulphuric acid, sodium bicarbonate, caroid, fibrolysin, chloroform, and sodium ricinoleate, I struck on the use of monohydrated sodium carbonate, U S P.

When the hands are bathed in washing soda, the commercial form of sodium carbonate, the skin becomes very soft, particularly the cuticle about the finger nails. I planned to try it as an agent to render soluble the mucus taken from the eyes of patients with vernal conjunctivitis. As washing soda is a very unstable compound containing ten molecules of water and many impurities, I used the standardized product of the United States Pharmacopeia, containing one molecule of water. I set up a series of test tubes, each containing specimens of mucus from patients with vernal conjunctivitis, at the Wills Hospital and in my private practice. Much discouraged in finding a solvent, I set my rack of test tubes aside, waiting for another inspiration. Some time later I consulted Mr. Joseph W. E. Harrison, an associate of Prof. Charles LaWall of the Philadelphia College of Pharmacy, who by chance was a patient at my office. Picking up a group of test tubes, I asked him if he could tell me in which he would consider the mucus dissolved, if any. He selected the tube containing the sodium carbonate, informing me that the mucus had disintegrated and that a clear solution was not necessary to consider it dissolved.

It then occurred to me that it was unnecessary to have a complete solution of the mucus in order to release its hold on the lid surfaces in vernal conjunctivitis, if the mucus was sufficiently disintegrated so that it might be readily washed away. This could be accomplished by thorough flushings of the eye by means of an eye cup containing any solution pleasant to the eyes.

An alkali such as tenth normal sodium hydroxide is used to render soluble the powdered pollens in making the scratch tests for sensitivity. Sodium carbonate, which is also an alkali and a solvent of mucus, will render soluble the dusts and pollens that enter the eye, along with the mucus to which the dust particles adhere. I felt that with sodium carbonate and the use of frequent flushings of any solution, boric acid for convenience, I would have a treatment that would give the patient relief. I accordingly made solutions of sodium carbonate 5, 10 and 15 grains to the ounce. I found that the solution of 15 grains (1 Gm.) applied to the lids of patients with vernal conjunctivitis was somewhat irritating. Ten grains was tolerated. Five grains caused no complaint on the part of the patient.

In my test tube experiments I used approximately 10 per cent sodium carbonate. This solution, of course, is too strong for the eye, and realizing that it was not necessary to dissolve the mucus completely but merely to loosen it from its attachments, I found repeated use

of this preparation in solution 5 grains to the ounce was sufficient to keep the conjunctiva completely alkalinized and was sufficient to disintegrate the mucus so as to make it readily removable by flushings from an eye cup.

Still working under the theory that thorough and repeated flushings of the eye will wash out the dusts and pollens that could readily be reached on the conjunctival surface, I continued this method of treatment in conjunction with the use of sodium carbonate, three drops, four times a day, the boric acid flushings always preceding the instillation of sodium carbonate.

In order to make sure that the patients were getting sufficient sodium carbonate, I tested the alkalinity of the conjunctiva with litmus paper and found in each instance that the alkalinization had persisted.

Up to the present time I regarded epinephrine as the most effective drug in the treatment of this disease. I learned that epinephrine is disintegrated in the presence of an alkali, particularly sodium carbonate. As a substitute for epinephrine I used cold boric acid solution at a temperature which one commonly finds in the average household icebox, about 55 F., where the solution can be kept. The cold lotion is sufficient to act as an astringent and the boric acid maintains its cleansing effect.

Boric acid, being but feebly acid, does not in any way interfere or render appreciably less alkaline the sodium carbonate. Patients having had the disease for several seasons can comfortably tolerate 10 grains of sodium carbonate in the eyes.

I was agreeably surprised to find that patients were remarkably relieved of the itching and that the discharge gradually disappeared.

Just what effect the sodium carbonate has on the pollens and dusts, I am not prepared to state at this time, but I do know that it enables the ready dislodgment of the mucus which aggravates and intensifies the itching, and that associated with the thorough flushings of the eye with boric acid solution there is effected a rapid alleviation of symptoms and reduction in the size of the follicles.

I do not claim that this treatment will change the pathologic condition in the chronic lid types in which large granulomas exist, because this is a secondary pathologic change which can be removed only by surgery or radium. In the initial stages of the disease, during the first and even the second summers, the pathologic condition disappears when the exciting cause is removed by the treatment just outlined.

It is my belief that the sodium carbonate treatment is not sufficient in itself but must be accompanied with the thorough flushings of cold boric acid solution at least seven times a day. It is sufficient to use three drops of sodium carbonate four times a day, always preceded by the boric acid flush, thus permitting ample time for partial disintegration of the mucus and the theoretical destruction of the active principles in the dusts and pollens which are the causative agents.

Last summer I used this treatment in twenty-seven cases and found that it excelled any other drugs or chemicals heretofore used by me. The disappearance of the discharge, the rapid and complete relief from itching, and the recession of the pathologic condition have been so convincingly striking as to deserve reporting the facts and observations.

I reported the results of my experiments to Dr. John Kolmer, who regards the effects as plausible and hints

that he would not be surprised if the same method of treatment might apply to hay fever

I present this treatment to the ophthalmologic profession only after thorough scientific investigation of the disease, only after proving that desensitization is slow, tedious and oftentimes ineffective in its results, only after observing that radium is of limited use in relief of symptoms and then only in the hands of expert radiologists, only after applying all the known forms of treatment, and only after careful search for a remedy which can be applied throughout the course of the spring and summer months when pollens and certain dusts, influenced by weather, are the exciting agents of the disease

The treatment is not aimed to desensitize, nor is it aimed to prevent the disease. It merely serves as a chemical agent with a rational and scientific basis to render inert the exciting agents, which must be kept frequently flushed from the eyes during the period in which the disease is active

1321 Spruce Street

Clinical Notes, Suggestions and New Instruments

DYSINSULINISM A DISCUSSION AND CASE REPORT

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Naming diabetes mellitus on the basis of its aberrant endocrine physiology, one would call the disease hypo-insulinism. In this disease hyperglycemia and glycosuria are essential features. The discovery of insulin by Banting, Best and their co-workers led to the rational therapy of this disease and to the discovery of perhaps two others—hyperinsulinism and dysinsulinism.

Insulin, when given in overdosage to diabetic patients, causes a train of symptoms that is very well known. There is a feeling of nervousness, hunger and weakness accompanied by a profuse sweat, dizziness, diplopia, pallor, faintness, syncope and convulsions, ultimately, coma may result. From this reaction, which is more or less acute in its onset, the patient can be aroused dramatically in a few moments by the administration of carbohydrates.

Seale Harris had noted patients who presented symptom complexes very similar to those obtained in diabetic patients during insulin shock. He was the first to reason that perhaps these patients actually had a spontaneous hypoglycemia of intrinsic origin. In 1924 he¹ reported three cases that had come under his observation, the patients complaining of weakness, nervousness, and hunger one hour before meals, from which relief was obtained by eating carbohydrate in some form. Accompanying these symptoms, blood sugar determinations in every case were below 70 mg per hundred cubic centimeters of blood. He also noted that one of these patients showed evidence of both hyperinsulinism and hypo-insulinism, and to this case he gave the diagnosis of dysinsulinism. Soon thereafter Jonas² reported a case.

These observations were confirmed by Wilder, Allen, Power and Robertson,³ who reported a case in which necropsy showed adenocarcinoma of the islet tissue with metastases to the lymph nodes and the liver. Extracts of the metastatic areas in the latter organ were proved to contain insulin. Similar reports have been made by McClenahan and Norris,⁴ and Thalheimer

and Murphy.⁵ Howland, Campbell, Maltby and Robinson⁶ reported the first cure by surgical means, i.e., removal of islet cell tumor. Cushing,⁷ Womack, Gnagi and Graham,⁸ and Carr, Parker, Grove, Fisher and Larrimore⁹ have also reported successful surgical cures. The Finneys,¹⁰ in operating on their patients, failed to find a distinct tumor and resected a portion of the pancreas, with mild improvement. Warren¹¹ gives an excellent description of adenomas of the islets of Langerhans, and Harris,¹² in 1932, collected all the cases reported on this continent. A case in Germany is reported by Krause,¹³ and more recently John¹⁴ and Heyn¹⁵ have reported cases, while Elias and Turner¹⁶ reported four cases in children. It is interesting that many of these patients have been physicians

REPORT OF CASE

The following is a case which came under my observation

History—S. L., a white man, aged 37, a war veteran, was admitted to the Naval Hospital, Brooklyn, with a diagnosis of diabetes mellitus. He presented none of the complaints given by diabetic patients, except that he was told he had sugar in his urine and that he had lost much weight. He complained of malleolar edema in the evenings, weakness, dyspnea on exertion, and a diarrhea of four or five daily stools with mucus. He also stated that he had weighed 230 pounds (105 Kg.) four years before, while his present weight was 150 pounds (68 Kg.). He had also noted that for the past seven months he had had occasional attacks of weak feeling and haziness, which cleared up immediately after taking orange juice.

A year before he was in this hospital and study showed him to have a chronic ulcerative colitis. He had also had the usual exhaustive study at the Mayo Clinic, and the same condition had been found there. They found a normal blood sugar at that time. His appendix and gallbladder were removed in 1930. The patient stated that he had not had any venereal diseases. He had a submucous resection, after which a perforation of the septum resulted.

His family history revealed no chronic, hereditary or familial disease. The patient's habits were normal in every respect. He indulged in alcohol and tobacco in moderation.

Physical Examination—The patient was pale and undernourished and was not acutely ill. Positive conditions found at examination included pallor of the sclerae and mucous membranes. The skin showed definite evidence of loss of weight. He had a perforated nasal septum and chronically inflamed tonsils. There was a soft systolic murmur at the apex of the heart transmitted to the axilla. There was a slight pitting edema of the ankle. The blood pressure was 102 systolic, 62 diastolic.

Progress—April 30, the fasting blood sugar was 110 mg per hundred cubic centimeters of whole blood. The patient was given small doses of digitalis.

May 2, the fasting blood sugar was 148, the urine sugar, 0.3 per cent.

May 3, the blood sugar was 100, the urine sugar, 0.3 per cent.

May 4, the patient was placed on a diet of carbohydrates 84, proteins 61 and fats 94. The noon urine showed 0.6 per cent sugar, blood sugar, 81.

5 Thalheimer, William, and Murphy, F. D. Carcinoma of the Islands of the Pancreas, *J. A. M. A.* **91**: 89-91 (July 14) 1928.

6 Howland, Goldwin, Campbell, W. R., Maltby, E. J., and Robinson, W. L. Dysinsulinism, *J. A. M. A.* **93**: 674-679 (Aug. 31) 1929.

7 Cushing, Harvey. Neurohypophyseal Mechanisms from a Clinical Standpoint, *Lancet* **2**: 119-127 (July 19) 1930.

8 Womack, N. A., Gnagi, W. B., and Graham, E. A. Adenoma of the Islets of Langerhans with Hypoglycemia, *J. A. M. A.* **97**: 831-836 (Sept. 19) 1931.

9 Carr, A. D., Parker, Robert, Grove, Edward, Fisher, A. O., and Larrimore, J. W. Hyperinsulinism from B Cell Adenoma of the Pancreas, *J. A. M. A.* **96**: 1363-1367 (April 25) 1931.

10 Finney, J. M. T., and Finney, J. M. T., Jr. Resection of the Pancreas, *Ann. Surg.* **88**: 584-591 (Sept.) 1928.

11 Warren, Shields. Adenoma of the Islands of Langerhans, *Am. J. Path.* **2**: 335-349 (July) 1926.

12 Harris, Seale. Hyperinsulinism and Dysinsulinism (Insulogenic Hypoglycemia), with Chronological Review of Cases Reported in the United States, *Internat. Clin.* **1**: 9-29 (March) 1932.

13 Krause, F. Hyperinsulinism with Hypoglycemia Syndrome, *Klin. Wchnschr.* **9**: 2346-2349 (Dec. 13) 1930.

14 John, H. J. Hyperinsulinism. Report of a Case, *J. A. M. A.* **97**: 1708-1709 (Dec. 5) 1931.

15 Heyn, L. G. Hyperinsulinism, *J. A. M. A.* **98**: 1441-1443 (April 23) 1932.

16 Elias, H. L., and Turner, Reuben. Hypoglycemic Shock in Children. Report of Four Cases, *J. A. M. A.* **98**: 2198-2199 (June 18) 1932.

From the Medical Service of the United States Naval Hospital.

1 Harris, Seale. Hyperinsulinism and Dysinsulinism, *J. A. M. A.* **83**: 729-733 (Sept. 6) 1924.

2 Jonas, Leon. Hypoglycemia, *M. Clin. North America* **8**: 949-956 (Nov.) 1924.

3 Wilder, R. M., Allen, F. N., Power, M. H., and Robertson, H. E. Carcinoma of the Islands of the Pancreas. Hyperinsulinism and Dysinsulinism, *J. A. M. A.* **89**: 348-355 (July 30) 1927.

4 McClenahan, W. U., and Norris, G. W. Adenoma of the Islands of Langerhans with Associated Hypoglycemia, *Am. J. M. Sc.* **177**: 93-97 (Jan.) 1929.

May 5, the fasting blood sugar was 60. At 11 30 p in the patient had an attack of diplopia, weakness, muscle tremor and sweating, and he became unconscious. He was immediately revived by orange juice. Blood sugar drawn at this time measured 44 mg. The next morning the blood sugar was 112, but the urine contained 1 plus acetone. During the week, a complete blood count and a urinalysis were normal, and the Kahn test was negative.

May 6, the patient had a mild reaction but immediately responded to orange juice.

May 7, a dextrose tolerance test showed the following: Blood fasting, 54, first hour, 476, second hour, 417, third hour, 204. Urine fasting, 0, first hour, 30 per cent, third hour, 20 per cent. A roentgenogram of the heart suggested mitral stenosis. An electrocardiogram showed a depressed ST interval in leads 1 and 3, indicative of coronary involvement.

May 9 and 10, the fasting blood sugars were 56, and just before the noon meal the patient had a slight reaction but, with food, immediately recovered.

May 11, the fasting blood sugar was 68, and fifteen minutes after epinephrine was given by hypodermic it was 100. The diet was changed to carbohydrate 109, protein 66 and fat 119.

May 12, the fasting blood pressure was 68. After 1 cc of solution of pituitary, 68. Daily studies of stools were negative except for 2 plus occult blood. A proctoscopic examination revealed no pathologic changes.

May 14, a barium enema revealed no abnormalities. The blood sugar was 40.

May 16, the blood sugar taken during a reaction, was less than 25 mg per hundred cubic centimeters of whole blood. The diet now was carbohydrate 159, protein 166 and fat 119.

May 17, blood sugars and electrocardiograms were taken simultaneously before and after a dextrose tolerance test. The following description is added. The patient arrived at 8 40 a m, walking and very nervous. He was unable to lie still and sweated profusely. Pallor was very marked. The pulse was 86, and respirations were 20. The patient grew weaker, went into a sort of convulsion and fainted at the conclusion of the test. The blood sugar was less than 25 mg per hundred cubic centimeters of whole blood. At 9 o'clock, he was given 100 Gm of dextrose by mouth. When seen at 10 45, the patient's color was good and he had no symptoms. The blood sugar at this time was 333 mg per hundred cubic centimeters of blood. There was no difference in the electrocardiographic examinations taken with a blood sugar at less than 25 mg or at 333 mg.

May 20, the patient was placed on a regular diet with 8 ounces (240 cc) of orange juice at 8 p m, at midnight and at 6 a m.

June 4, the blood sugar taken during an attack was again less than 25. In the attack he had a rather marked pallor. His eyes were more or less fixed and his skin was cold. He would not answer questions. Attempts to give orange juice were unsuccessful, and it was necessary to give dextrose intravenously. Before the injection was completed, the patient was laughing and joking as though nothing had happened. Investigation revealed that the patient failed to obey instructions and failed to take his additional carbohydrate. This was his last attack while in the hospital.

June 7, The patient's urine contained 1 per cent sugar. A gastro intestinal series of roentgenograms showed a marked widening of the duodenal curve suggesting a pancreatic tumor. There was also a displacement of the bulbous duodenum to the right.

June 9 0.3 per cent sugar was found in the urine, red blood cells numbered 4 million, hemoglobin was 83 per cent.

June 13 2.5 per cent sugar was found in the urine. Antitoxic therapy was instituted.

June 20 the blood sugar was 68. Red blood cells numbered 3.7 million.

June 27, the blood sugar was 50. Red blood cells numbered 3.4 million with 70 per cent hemoglobin. White blood cells 10,000 polymorphonuclears, 67 per cent lymphocytes, 31 per cent. The patient had an acute bronchitis and decompensation returned.

July 1 the patient recovered from his acute infection. Edema disappeared for the most part. The red blood cells numbered 3.1 million, hemoglobin was 65 per cent.

July 11, the patient was seen in consultation with Dr. James Ewing of the Memorial Hospital. He suggested a roentgenogram of the sella turcica and the Aschheim-Zondek test.

July 18, the Aschheim-Zondek test was negative. A roentgenogram of the sella turcica showed no deviations from the normal.

July 27, the red blood cells numbered 4 million, hemoglobin was 75 per cent, white blood cells numbered 6,350.

August 9, the blood count was normal. The surgical consultant recommended exploratory operation, but the patient refused, in view of his recent marked improvement.

August 18, the Aschheim-Zondek test was again negative. The blood sugar was 70.

August 24, the patient was discharged at his own request. The final diagnoses were (1) dysinsulinism (adenoma or adenocarcinoma of pancreatic islets) symptomatically controlled, (2) valvular heart disease and mitral stenosis, no change, (3) chronic ulcerative colitis, (4) chronic myocarditis, class 2a, improved, (5) mild secondary anemia, improved, (6) chronic tonsillitis, no change.

COMMENT

This case is interesting because on three occasions the patient had a blood sugar of less than 25 mg of sugar per hundred cubic centimeters of whole blood. (All determinations were done according to the method of Folin and Wu.) This is the lowest that I have been able to find in any other case reported thus far. Furthermore, this patient could tolerate a hypoglycemia of 50 without symptoms, whereas usually if the blood sugar drops below 70, hypoglycemic or insulin shock ensues. It is another example of bodily adaptability to morbid conditions.

The diagnosis of dysinsulinism is given in this case because in addition to the patient's hypoglycemic reactions, which are due to hyperinsulin activity, when he is given a dextrose tolerance test he shows a typical diabetic response. Moreover, he shows transient hyperglycemia, glycosuria and acetoneuria, which are due to hypo-insulin activity. Either the threshold of insulin production is higher than normal, and when produced is overactive, or else an insulin-like substance is produced which is delayed in its action but which, when acting, has a more powerful effect than normal insulin—a true dysinsulin.

It is my belief that this patient has either an adenoma or, possibly, an adenocarcinoma of the islet tissue. The condition is so well controlled by a frequent carbohydrate diet that he refuses operative intervention. The colitis and cardiac manifestations are believed to be independent of the dysinsulinism, as they seemed not to change whether the dysinsulinism was controlled or not. The colitis at least existed for three and a half years before the onset of the dysinsulinism.

Etiology—These conditions are caused by adenomas or adenocarcinomas of the pancreatic islet tissue. Other endocrine neoplasms, especially of the suprarenal medulla,¹⁷ conceivably might mimic this syndrome. It is also possible that diffuse hyperplasia of the islet tissue might be present in some instances.

Pathology—Anatomically the pathologic changes are those just mentioned. Physiologically, either an overproduction of normal insulin or a true dysinsulin is produced. The hypoglycemia is of course the cause of the clinical symptoms.

Diagnosis—While this is a rare condition, the diagnosis appears to be easy to make. It is clinched by finding a spontaneous hypoglycemia concurrently with the impending or actual syndrome. Whether or not the case is one of hyperinsulinism or dysinsulinism depends on the response to the dextrose tolerance test and on the presence of transient hyperglycemia and glycosuria. In the former, the response to a dextrose tolerance test should be normal or subnormal, and there should be no hyperglycemia or glycosuria. In the latter, the reactions are like those of a diabetic patient. Very often the patients seem to have found themselves that carbohydrates relieve them and present it in their history. The relationship to meals, in that attacks occur soon before meals or when the patient has had a long period without food is almost diagnostically suggestive. In regard to differential diagnosis, it must be remembered in all cases of coma, but more especially with some cases of epileptiform seizures,¹⁸

17 Anderson H B A Tumor of the Adrenal Gland with Fatal Hypoglycemia *Am J M Sc* 180 71 79 (July) 1930
18 Nielsen J M and Eggleston E L Functional Dysinsulinism with Epileptiform Seizures *J A M A* 84 860 863 (March 22) 1930

Treatment—Symptomatically relief is obtained by giving to the patient carbohydrate, by mouth or vein. If none is available, epinephrine by hypodermic should be used. A frequent carbohydrate diet may symptomatically control the condition. A true cure, however, can be expected only by surgical removal of the offending neoplasm. This, however, has not always been found, and partial resection of the pancreas has not given satisfactory results.

CONCLUSIONS

1 A case of dysinsulinism showing both features of hypoinsulinism and hyperinsulinism presented on three occasions a hypoglycemia of less than 25 mg of sugar per hundred cubic centimeters of whole blood. This is the lowest I have seen reported.

2 The basic pathologic condition as well as the etiology is probably adenoma or adenocarcinoma of the pancreatic islet tissue.

3 The patient's symptoms are well controlled by frequent carbohydrate feeding.

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COSTOVERTEBRAL DISLOCATION OF THE TWELFTH RIB

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Dislocation of the ribs at their vertebral articulations is a very rare injury. Textbooks refer to the condition briefly or not at all. The literature is similarly meager in references. Schertlein¹ says that there is but one recorded case in the German literature from 1909 to 1929 and cites Riedinger, who in 1888 compiled nine cases from the literature, of which only one could be regarded as a true luxation. Stewart and Warren² published a review of ten cases and mention two others from

the literature of over 200 years, adding a case of their own. There is the only article on the subject in American literature since 1896 and the latter deals with a dislocation at the sternal extremity.³ Three cases have been reported since then in the German literature.⁴

Separation or dislocation of a rib may occur at its sternal or its vertebral attachment. The displacement may be forward,



Downward dislocation of right twelfth rib

backward, up or down. Approximately one half of the cases reported are of the eleventh and twelfth ribs, which fact is of etiologic significance in that these ribs are not attached anteriorly by cartilage. The anterior ends of the ninth and tenth ribs may be dislocated from their cartilaginous attachments to the adjacent ribs. Dislocation at the costovertebral articulation is most frequently found as a complication of fracture of the spine.

The rarity of vertebral dislocation is due to the firm and strong ligamentous attachments at this site, which make fracture the more likely injury to occur. For the production of such a dislocation, a violent and complex acting force is required. Indirect violence is the principal cause, since its force is transmitted to the costal attachments, although the condition may be produced by direct violence. The degree of violence producing the injury was sufficient to cause death in eight of the ten cases.

1 Schertlein, A. Isolated Costovertebral Dislocations of the First Rib. *Fortschr. a. d. Geb. d. Röntgenstrahlen* 39: 482-485 (March) 1929.

2 Stewart, S. F., and Warren, J. W. Luxation of Costovertebral Joints. *J. A. M. A.* 92: 605 (Feb. 23) 1929.

3 McCosh, A. J. Case of Sternal Dislocation of Second and Third Costal Cartilages and of Clavicle with Fracture of Fourth and Fifth Cartilages. *Pneumonia, Pericarditis*, M. & S. Rep. Presb. Hosp., New York 1: 203-205, 1896.

4 Schertlein¹, Bohle, W. On Dislocation of Ribs. *Arch. f. Orthop.* 27: 269-272 (May 23) 1929.

reviewed by Stewart and Warren, and in seven of the nine cases compiled by Schwartz.⁵

Complications of pleural and pulmonary injury or abscess formation may be very grave. There may be laceration of the intercostal artery and severe hemorrhage into the pleural cavity.

Roentgen examination will always demonstrate the injury, but it may be noted on physical examination by (1) swelling or depression at the articulation, (2) motility (pressure at one extremity moves the other), and (3) anesthesia or paresthesia with neck rigidity when the first rib is involved. Pain is usually present.

Treatment will of necessity be individualized, strapping or bandaging of the chest appearing to be satisfactory in uncomplicated cases of the lower ribs. Reduction by pressure prior to immobilization can usually be accomplished. In the depressed type, open reduction may be necessary, especially if there is respiratory embarrassment. In the case reported by Stewart and Warren, the first rib was involved and exposure was obtained by an oblique incision over the clavicle. The rib was then drawn upward into the articulation by means of a hook. The brachial plexus and subclavian artery, which had been displaced by the injury with the production of anesthesia, analgesia and paresis, returned to their usual positions and the disturbances disappeared.

The following case, involving a complete dislocation of the twelfth right rib without associated fracture of the ribs or spine or lung injury, is the seventeenth recorded case.

D. P., a man, aged 25, was injured, May 9, 1931, as the result of an accident while driving his car. A front wheel suddenly locked, causing the car to strike an earthen embankment on the side of the road. The car then turned on its left side. The patient was stunned for a short time and he does not know in what manner his injury was received. He proceeded to the office of a nearby physician, who strapped his chest with adhesive plaster after diagnosing fracture of the ribs. The following day the patient consulted his home physician, Dr. Hugh Johnson, through whose courtesy the case is reported. The subsequent progress not being satisfactory, he was referred to me for roentgen examination, at which time the downward dislocation of the twelfth right rib was discovered, as shown in the accompanying illustration. There was no fracture of the ribs or spine. Examination of the lungs gave negative results. A depression was noted at the point of the dislocation, with tenderness on pressure. The patient complained of pain on movements of the arms, when lifting any weight, when stooping or bending and on deep inspiration. Immobilization by means of adhesive plaster was continued, with the gradual disappearance of all symptoms.

610 First National Bank Building

LOCALIZED HEADACHE ASSOCIATED WITH LESION OF MENINGEAL VESSELS

WINCHELL MCKENDREE CRAIG, M.D., ROCHESTER, MINN.

Generalized headache, or cephalalgia, may be a symptom of many different diseases and is of doubtful diagnostic significance unless associated with other symptoms of intracranial changes. Localized headache, however, is frequently of diagnostic significance and may indicate the region of intracranial involvement, as illustrated by the case here to be reported.

Intracranial operations under regional anesthesia have demonstrated that the brain is insensitive to pain and that the dura mater is probably the only sensitive tissue encountered, the greatest discomfort is caused by ligation or manipulation of the meningeal vessels.

According to Teachenor,¹ the dura has a rich and somewhat complicated nerve supply. It is supplied mainly from the fifth and tenth cranial nerves and the sympathetic system, although some fibers are derived from the fourth and twelfth cranial nerves. A branch of the mandibular division of the fifth nerve, which is given off directly after the exit of this division from the foramen ovale, and which passes backward to reenter the cranial cavity through the foramen spinosum, accompanies the

5 Schwartz, quoted in Ochsner, A. J. *Surgical Diagnosis and Treatment*. Philadelphia: Lea & Febiger, 2: 228, 1921.

From the Section on Neurologic Surgery, the Mayo Clinic.

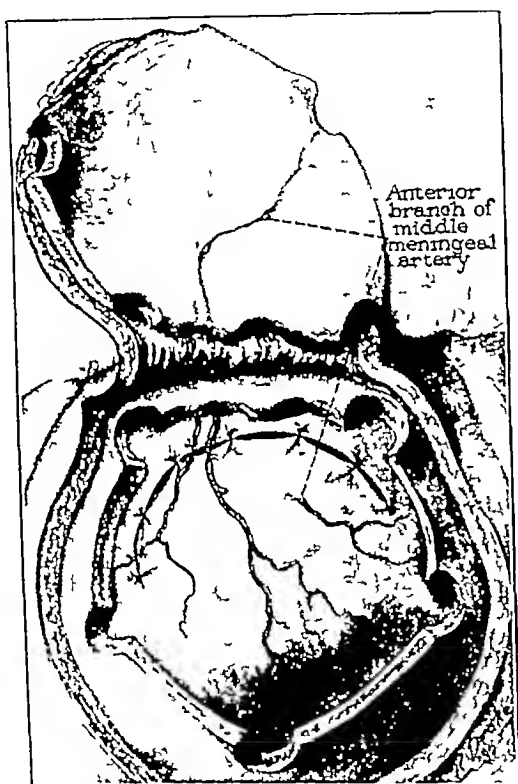
1 Teachenor, F. R. Headaches of Intracranial Origin, *Laryngoscope* 37: 320-325 (May) 1927.

middle meningeal artery in its distribution over the dura. This accounts for the excruciating pain when any of the branches of this artery are ligated and would explain a localized region of pain or of tenderness along this artery.

Dandy² has reported the successful treatment of the hemi-crania of migraine by cervicothoracic sympathectomy, and Adson³ has suggested ligation of the middle meningeal artery at the foramen spinosum for the same type of localized headache.

REPORT OF CASE

A man, aged 25, complained of localized headache in the left frontotemporal region. The pain had been present for about one year and had come on suddenly when the man was coughing in the course of an acute attack of coryza. The patient described the pain as a dull ache, with a sensation of pressure, and when he was coughing or sneezing it assumed a sharp, lancinating character, extending forward into the frontal region. About three months after its onset, following a fit of coughing, the pain became so severe that the patient collapsed and was unconscious for a short time.



The anomalous position of the anterior branch of the middle meningeal artery and the operation after which the pain did not reappear.

General examination gave essentially negative results but did reveal a very tender area on palpation in the left frontotemporal region just beneath the insertion of the temporal muscle on the parietal bone. This region was extremely tender to pressure but when the temporal muscle was contracted tenderness could not be elicited. Roentgenograms of the head gave negative results and bruits were not audible. The nasopharynx was apparently normal and cocainization of the sphenopalatine ganglion on the left was not followed by relief of pain. In that the pain was of explosive type, it suggested trifacial neuralgia involving the ophthalmic division of the fifth nerve but no trigger area could be found, and on the whole the condition seemed less characteristic of trifacial neuralgia than of localized involvement of the anterior branch of the middle meningeal artery.

Because the pain was so disabling craniotomy was performed to expose the middle meningeal artery. A small osteoplastic flap was reflected over the left frontoparietal region,

and the anterior branch of the middle meningeal artery was found embedded in the inner table of the skull, where it had eroded a tunnel-shaped passage through the bone rather than the shallow depression usually present. When the osteoplastic flap was elevated, that portion of the middle meningeal artery which was embedded in the bone was torn from its attachment to the dura and remained in the bone. The remaining portion of the middle meningeal artery attached to the dura was ligated, and the dura was incised in a semicircular fashion, as shown in the accompanying illustration. The edges of the dura were approximated with sutures of silk, and the wound was closed. The patient made an uneventful convalescence, and although he complained of localized discomfort in the region of the osteoplastic flap, the former pain had entirely disappeared and he could cough, sneeze, and bend the head forward without any discomfort.

In a letter received from the patient one year after he had been dismissed, he reported that he was completely relieved of headache and was working every day without any discomfort.

HEMIPLEGIA DUE TO SMALLPOX

RAYMOND M. RICE, M.D., AND M. J. CAREY, M.D.
COUNCIL BLUFFS, IOWA

This case is reported because of the evident rarity of its occurrence. In searching for similar cases in the literature we found much discussion of encephalomyelitis following smallpox vaccination.¹ In a thesis dated 1872,² six cases are reported of paralysis occurring during smallpox or convalescence, Goss³ reported a similar case, but none of these were hemiplegias. Mention is made in one modern textbook that hemiplegia due to smallpox has occurred.

REPORT OF CASE

History—A white boy, aged 5 years, was one of five healthy children. The mother had had two miscarriages previous to his birth. He had contracted whooping cough and chickenpox during his third year.

May 27, 1932, he became nauseated, vomited and had a high temperature. The following three days he seemed well, and on May 31 the eruption of smallpox appeared. Two days later his mother noticed that he was unable to walk steadily and put him to bed. The following day she found that he was unable to use his right arm and leg and that his speech was unintelligible. Medical aid was summoned for the first time. He had had no noticeable fever and had seemed perfectly well since his prodromal symptoms.

Examination—The patient was well developed and nourished. The temperature, pulse and respiration rate were normal. An extensive pustular eruption characteristic of smallpox covered his body. He had a complete flaccid hemiplegia involving the right side, including the face and tongue. His speech was thick and difficult to understand. He seemed normal mentally. Hearing, vision, sense of touch and pain all seemed normal. Patellar, achilles and abdominal reflexes were absent on the right side, and the right cremasteric was decreased. All these were normal on the left side. The biceps and triceps seemed equal bilaterally. The pupils reacted normally. The neck was not resistant and the Kernig sign was negative. General physical examination was otherwise negative.

The complete blood count was normal. The urine was negative except for a 1 plus albumin. The spinal fluid cell count was 17, and a slight globulin increase was noted. Wassermann tests of the spinal fluid and the blood were negative.

Progress—Two days after the first symptoms of paralysis were noted, the patient could move his right leg slightly. The third day he was able to raise it off the bed. No change was noted in the right arm until the seventh day, at which time he could move it slightly. On the sixteenth day he was able to walk although the right leg functioned poorly. The arm and hand were very weak and the speech was imperfect. He was again seen about six weeks after the onset, at which time he was almost normal.

¹ Dandy, W. E. Treatment of Hemicrania (Migraine) by Removal of the Inferior Cervical and First Thoracic Sympathetic Ganglion. *Bull. Johns Hopkins Hosp.* 48: 34-501 (June) 1931.

² Adson, A. W. Personal communication to the author.

³ Perritt, R. A., and Carrell, R. C. Postvaccinal Myelitis. *J. A. M. A.* 94: 793 (March 15) 1930. Perdrau, J. R. The Histology of Postvaccinal Encephalitis. *J. Path. & Bact.* 31: 17 (Jan.) 1928.
⁴ Bailly, U. Paralysis Following Acute Diseases. Paris thesis 1872.
⁵ Goss, F. W. Case of Paralysis Occurring During Varioloid. *Boston M. & S. J.* 88: 464 1873.

Committee on Foods

REPORTS OF THE COMMITTEE

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION, AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

RAYMOND HERTWIG, Secretary

VB (VISSCHER BROTHERS) JUNIOR BRAND STRAINED APPLE SAUCE FOR CHILDREN (Sweetened with sugar)

Manufacturer—Lyndonville Canning Company, Lyndonville, N. Y.

Description—Canned, cooked, strained apple sauce prepared from peeled and cored apples with added sucrose, retains in high degree the original vitamin values of the apples used.

Manufacture—The manufacture is the same as that described for VB Old Fashioned Apple Sauce (THE JOURNAL, Aug. 6, 1932, p. 476) with the exception that the pulped, cooked hot apple sauce is strained through a "finishing machine" in an atmosphere of water vapor. The straining operation consumes only a moment of time. The sauce is canned and processed for five minutes. The entire process from the peeling of the apples to the filling of the cans takes approximately eight minutes.

Analysis and Calories—See these sections for VB Old Fashioned Apple Sauce.

Vitamins—The comminution of the apple sauce while still hot in the presence of moisture vapor and the short time consumed make the preparation of this product apparently as efficient as any available for the retention of the natural vitamin values.

Claims of Manufacturer—Especially prepared for infant and invalid feeding.

MILLET'S WHOLE WHEAT BREAD (Contains Whole Wheat, Potato and Rice Bran)

Manufacturer—Millet System of Baking, Dallas, Texas.

Description—A wheat bread made by the sponge dough method (method described in THE JOURNAL, March 5, 1932, p. 817), prepared from whole wheat flour, whole boiled potatoes, water, potato ferment, sugar, rice bran, salt, vegetable compound and compressed yeast.

Analysis (submitted by manufacturer) —	per cent
Moisture (entire loaf)	34.2
Ash	2.7
Fat	3.6
Protein (N × 6.25)	9.9
Crude fiber	1.2
Carbohydrates other than crude fiber (by difference)	48.4

Calories—27 per gram, 77 per ounce.

Claims of Manufacturer—Baked one hour.

HURFF BRAND TOMATO JUICE (Made from Whole Red Ripe New Jersey Tomatoes)

Manufacturer—Edgar F. Hurff, Swedesboro, N. J.

Description—Canned pasteurized tomato juice with added salt, retains in high degree the vitamin content of the raw juice.

Manufacture—Field ripened tomatoes from growers in the surrounding territory are inspected for firmness, color, texture and freedom from mold or soft spots. Tomatoes cracked at the stem are excluded. Suitable tomatoes are washed by agitation in flowing water, they are inspected on belts and undesirable fruit is discarded, the ends and cores are automatically trimmed off and the trimmed and cored tomatoes are spray washed. The juice is expressed by a revolving spiral within a stationary screen, the grooves of the spiral are deep at the receiving end and shallow at the discharge end,

which arrangement causes a gentle pressing of the tomato pulp against the screen at the receiving end and a firm pressing at the discharge end. The juice passes through the screen, is brought to a temperature of from 85 to 87 C. in steam jacketed kettles and a small quantity of salt is added. The heating causes entrained air to rise to the surface, producing a froth, which is discarded. The hot juice is automatically filled into enamel lined cans, which are sealed, processed by immersion in water at 90 C. for five minutes and immediately cooled. The usual time period from the cleaning of the tomatoes to the final packing is from fourteen to sixteen minutes.

Analysis (submitted by manufacturer) —

	per cent
Moisture	92.4
Ash	1.2
Sodium chloride (NaCl)	0.6
Fat (ether extract)	0.7
Protein (N × 6.25)	0.8
Crude fiber	0.2
Carbohydrates other than crude fiber (by difference)	4.7

Calories—0.3 per gram, 9 per ounce.

Vitamins—The method of preparation in its details is considered efficient for retaining in high degree the natural vitamin values.

Claims of Manufacturer—This tomato juice is a good source of vitamins A and B and an excellent source of vitamin C, for infant feeding and general table use.

FRANK'S DIATADE

Manufacturer—Frank's Foodless Foods Company, Peekskill, N. Y.

Description—Contains white mineral oil (liquid petrolatum, U. S. P.), whole eggs, malt vinegar, salt, mustard, flour, white pepper and saccharin. Contains no starch and no sugar or fat other than that natural to the ingredients.

Manufacture—The formula proportions of whole eggs and spice are beaten in electric beaters. The mineral oil is added slowly with beating until a satisfactory emulsion is formed. The malt vinegar, salt and saccharin are beaten in. The resultant emulsion is bottled.

Analysis (submitted by manufacturer) —

	per cent
Moisture (moisture and volatile matter)	13.0
Total ash	1.5
Salt (NaCl)	1.4
Fat and mineral oil (ether extract)	83.5
Protein (N × 6.25)	1.1
Reducing sugars before inversion as invert (less than)	0.05
Reducing sugars after inversion as invert (less than)	0.05
Sucrose	0.0
Saccharin	0.012
Undetermined	0.5
Titrateable acidity as acetic acid	0.4
Lipoid phosphoric acid (P.O.)	0.03
Lipoid phosphoric acid (P.O.)	99.0
Unsaponifiable matter of separated oil	1.0
Iodine number of separated oil (Wij, 1 hr.)	2.6
Saponification number of separated oil	negative
Starch test	

Calories—0.1 per gram, 3 per ounce.

Claims of Manufacturer—Intended for use in place of the usual salad dressing for table use and for reducing diets. The mineral oil serves as an "internal lubricant" to promote normal bowel function.

FISHER'S WHOLE WHEAT FLOUR (Extra Fine Granulation)

Manufacturer—The Fisher Flouring Mills Company, Seattle.

Description—Fine whole wheat flour milled from a blend of hard red wheats of Montana, Washington and Idaho.

Manufacture—Whole wheat is cleaned, washed, scoured and milled as in preparation of flour. At the end of the process the flour and feed fractions are run together and blended in the same proportions as in the original wheat.

Analysis (submitted by manufacturer) —

	per cent
Moisture	11.2
Ash	1.6
Fat (ether extraction method)	2.2
Protein (N × 5.7)	14.2
Crude fiber	2.2
Carbohydrates other than crude fiber (by difference)	63.6

Calories—3.5 per gram, 99 per ounce.

Claims of Manufacturer—A whole wheat flour conforming to the United States Department of Agriculture definition and standard.

- 1 TWO STAR DURUM SEMOLINA
- 2 SUPERIOR NO 1 PURE DURUM SEMOLINA
- 3 BIG DIAMOND EXTRA FANCY
NO 1 SEMOLINA
- 4 FANCY NO 1 SEMOLINA
- 5 FANCY NO 1 SEMOLINA

Manufacturer—

- 1 Minneapolis Milling Company
- 2 Commander Milling Company
- 3 Big Diamond Mills Company
- 4 Empire Milling Company
- 5 Northland Milling Company

Subsidiaries of the Commander-Larabee Corporation, Minneapolis

Description—Purified wheat middlings or endosperm milled from durum wheat.

Manufacture—Selected amber durum wheat is cleaned, washed, tempered and milled by essentially the same procedure as described in THE JOURNAL, June 18, 1932, page 2210. The flour middlings is separated out from the bran, germ and flour and packed in bags.

Analysis—(submitted by manufacturer) —

	per cent
Moisture	13.0–14.5
Ash	0.56–0.61
Fat (ether extraction method)	0.8–1.5
Protein (N X 5.7)	12.7–13.5
Crude fiber	0.2–0.4
Carbohydrates other than crude fiber (by difference)	72.8–69.5

Calories—3.5 per gram 99 per ounce

Claims of Manufacturer—For the manufacture of alimentary pastes

EVAN'S E Z BAKE WHITE CORN MEAL (Degerminated and Debranned)

EVAN'S E Z BAKE YELLOW CORN MEAL (Degerminated and Debranned)

Manufacturer—Acme-Evans Company, Indianapolis

Description—Corn meal practically free from corn germ and bran

Manufacture—White or yellow corn is cleaned by the usual grain cleaning machinery to remove foreign material, is tempered with live steam, degerminated by special machines that remove the germ and knock off the pointed end of the kernels, partially dried, and cracked between grinding rolls. The cracked corn is screened, loose bran is removed by air currents, and the corn grits are reduced between steel rolls. The material of desired granulation is separated out by sifters and automatically packed in sacks.

Analysis (submitted by manufacturer) —

	per cent
Moisture	12.0
Ash	1.5
Fat (ether extraction method)	0.9
Protein (N X 6.25)	8.5
Crude fiber	0.8
Carbohydrates other than crude fiber (by difference)	76.3

Calories—3.5 per gram 99 per ounce

WARD'S BANNER WHOLE WHEAT BREAD (Sliced) (100 Per Cent Whole Wheat)

Manufacturer—The Ward Baking Company, New York City

Description—A whole wheat bread made by the straight dough method (method described in THE JOURNAL, March 12, 1932 p 889) prepared from whole wheat flour, water, sucrose, compressed yeast, salt, shortening and a yeast food containing calcium sulphate, ammonium chloride, sodium chloride and potassium bromate.

Analysis (submitted by manufacturer) —

	per cent
Moisture (entire loaf)	38.0
Ash	2.2
Fat	2.3
Protein (N X 6.25)	10.2
Crude fiber	2.0
Carbohydrates other than crude fiber (by difference)	45.3

Calories—2.4 per gram 65 per ounce.

Claims of Manufacturer—Conforms to the United States Department of Agriculture definition and standard for whole wheat bread.

FISHER'S COARSE GRAHAM FLOUR

Manufacturer—The Fisher Flouring Mills Company, Seattle

Description—Coarse whole wheat flour milled from a blend of red and white Montana, Washington and Idaho wheats.

Manufacture—Wheat is cleaned, washed, scoured and milled as in preparation of flour. At the end of the process the flour and feed fractions are run together and blended in the same proportions as in the original wheat.

Analysis (submitted by manufacturer) —

	per cent
Moisture	11.1
Ash	1.6
Fat (ether extraction method)	2.0
Protein (N X 5.7)	12.6
Crude fiber	2.7
Carbohydrates other than crude fiber (by difference)	70.0

Calories—3.5 per gram, 99 per ounce

Claims of Manufacturer—A graham flour conforming to the United States Department of Agriculture definition and standard.

FISHER'S WHITE CORN MEAL

(Germ and Bran Removed)

Manufacturer—The Fisher Flouring Mills Company, Seattle.

Description—Finely granular white corn meal practically free from corn germ and bran.

Manufacture—White corn is cleaned of foreign seed and materials, is scoured and polished, broken between steel rolls and passed through purifiers and aspirators, the ground material of a definite granulation and practically free of germ and bran is heat processed to destroy any insect infestation and packed in bags.

Analysis (submitted by manufacturer) —

	per cent
Moisture	11.5
Ash	0.9
Fat (ether extraction method)	2.0
Protein (N X 6.25)	10.6
Crude fiber	0.8
Carbohydrates other than crude fiber (by difference)	74.2

Calories—3.6 per gram 102 per ounce

SUNBEAM PURE FOOD TOMATO JUICE (Slightly Salted)

Packer—Tugwell and Wiseman, Inc, Modeltown, Niagara, N. Y.

Distributor—Austin, Nichols and Company, Inc, New York City.

Description—Pasteurized tomato juice with a small amount of added salt, retains in high degree the vitamin content of the raw juice. The same as Blue Bar Brand Tomato Juice (THE JOURNAL, March 11, 1933, p 740).

LUCKY BRAND BREAKFAST FOOD

(Farina with Some Fine Bran)

Manufacturer—Federal Mill, Inc, Lockport, N. Y.

Description—A spring wheat "middling" or farina containing some fine wheat bran.

Manufacture—Spring wheat "middlings" produced in the regular milling of flour is automatically packed in bags.

Analysis (submitted by manufacturer) —

	per cent
Moisture	14.0
Ash	0.71
Fat (ether extraction method)	1.3
Protein (N X 5.7)	11.3
Crude fiber	0.7
Carbohydrates other than crude fiber (by difference)	72.0

Calories—3.4 per gram 97 per ounce

Claims of Manufacturer—This farina is intended for a breakfast cereal or other table uses.

AMERT UNSWEETENED EVAPORATED MILK

Distributor—The Great American Tea Company, New York

Packer—The White House Milk Company, Inc, Mantowoc, Wis.

Description—This canned unsweetened evaporated milk is the same product as White House Brand Evaporated Milk (THE JOURNAL, Nov 19, 1932, p 1780).

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, MARCH 18, 1933

DEATHS OF PHYSICIANS PUBLISHED IN 1932

During 1932, the deaths of 3,142 physicians of the United States were recorded in *THE JOURNAL*, as compared with 2,952 in 1931 and 2,943 in 1930. The total number published was 3,247, which includes 105 Canadians. The list includes 2 who died in Hawaii, 1 in Alaska, 3 in France, 2 each in China, Africa and Germany, and 1 each in Persia, Siam, Mexico and Egypt. The obituaries of 87 women physicians were published in 1932, as compared with 84 in 1931. The graduates of medical schools in the United States for the fiscal year ended June 30, 1932, numbered 4,936. Deducting the number of physicians whose obituaries were published, there was a net addition to the ranks of the profession for the year of 1,794, which, figured thus, is an increase of 11 over 1931.

Ages—The average age at death of those classified as of the United States was 64.1, as compared with 63.8 for 1931. Two physicians lived to be 100 years old, and 55 others lived to be 90 or more. One was 22. Twenty-seven physicians died between the ages of 25 and 29, 44 between 30 and 34, 55 between 35 and 39, 114 between 40 and 44, 173 between 45 and 49, 248 between 50 and 54, 420 between 55 and 59, 478 between 60 and 64, 454 between 65 and 69, 419 between 70 and 74, 343 between 75 and 79, 206 between 80 and 84, and 101 between 85 and 89. January was the month of most deaths, with 282.

Accidental Deaths—One hundred and fifty-eight physicians died as the result of accidents in 1932, compared with 139 in the previous year. Automobile accidents accounted for 77 deaths, 6 more than in 1931. In 1932, deaths from falls numbered 19, the second largest number due to accidental causes. Twelve deaths were caused by drowning, 10 each by overdoses of medicine and gunshot wounds, 6 each by carbon monoxide gas, 4 each by skull fractures and burns, 3 each by airplane accidents and poisoning, and 2 each by x-ray machines, explosions and leg fractures. One was killed by a falling business sign, and remaining deaths were

caused by illuminating gas and suffocation by smoke. In some cases the nature of the accident was not specified.

Suicides and Homicides—Eighty-seven physicians committed suicide in 1932, 23 more than in 1931. Shooting accounted for 36 deaths, poison for 23, incised wounds, 9, hanging and gas, 5 each, drugs, 3, jumping, 2, chloroform and stabbing, 1 each, and in the remaining cases the method was not reported. There were 8 homicides by shooting, 1 victim was beaten.

Causes—Heart disease was again the leading cause of death with 1,101 deaths, compared with 1,065 for 1931. Some contributory causes are included in the tabulation, as they have been in former years. A report that the cause of death was "chronic nephritis and heart disease," for example, is so published in *THE JOURNAL* and is reported on the statistical charts under both diseases. Of the deaths from heart disease, endocarditis or myocarditis was specified in 332, angina pectoris in 127, and pericarditis in 2. Cerebral hemorrhage was the second most frequent cause reported, with 346 deaths, 17 additional deaths were reported as due to paralysis. Pneumonia was the third most frequent cause, lobar pneumonia was reported in 225 cases and bronchopneumonia in 59. Fourth on the list was arteriosclerosis, with 259, other diseases of the arteries caused 3 deaths. Nephritis caused 208 deaths, of which 17 were specified as acute nephritis. Of 228 deaths caused by cancer, the stomach and liver were affected in 55 cases, the intestine in 27, the prostate gland in 25, the buccal cavity in 4, the female genital organs in 1, and in 118 the part affected was not specified. Embolism and thrombosis caused 162 deaths, uremia, 81, diabetes, 70, tuberculosis, 68, and other diseases of the respiratory system, 8, diseases of the prostate, 47, and other diseases of the genito-urinary system, 29, influenza, 45, septicemia, 43, senility, 42, hypertension, 37, appendicitis, 35, cirrhosis of the liver, 31, and other diseases of the liver, 8, peritonitis, 24, ulcers of the stomach, 24, and other diseases of the stomach, 7, intestinal obstruction, 23, and other diseases of the digestive system, 30. Other diseases, each of which caused some deaths, were asthma and cholecystitis, 19, pulmonary edema and gangrene, 17, pernicious anemia, 14, abscesses, 12, chronic bronchitis, 12, meningitis, 12, and other diseases of the spinal cord, 1, chronic rheumatism and biliary calculi, 11, brain tumor, 10, paralysis agitans and encephalitis, 9, sarcoma, 8, typhoid, 7, shock, 6, leukemia, hernia and diseases of the bones and organs of locomotion, 5, aneurysm, diseases of the veins, pleurisy, progressive muscular atrophy, secondary anemia and pancreatitis, 4, syphilis, diseases of the organs of hearing, diverticulitis, mastoiditis, carbuncle, agranulocytic angina, septic sore throat, Hodgkin's disease, encephalomalacia, erysipelas and empyema, 3, typhus

fever, aplastic anemia, alcoholism, dementia paralytica, agranulocytosis, multiple sclerosis, sinusitis, edema, Mikulicz's disease, septic cellulitis, paralytic ileus, anemia, lymphosarcoma and intracranial hemorrhage, 2 each. Among other unusual causes of death given for 1 case each were Addison's disease, eclampsia, myasthenia gravis, ruptured esophageal varix, splenic anemia, yellow fever, pancreatic cyst, sprue, and transverse myelitis following the bite of a monkey.

Positions—Among the decedents were 149 who were or had been teachers in medical schools, 264 who served in the World War, 49 veterans of the Civil War and 40 veterans of the Spanish-American War. Eighty-nine had been health officers, 86 members of boards of education and 65 members of boards of health. There were 46 coroners, 46 mayors of municipalities, 24 members of the state legislatures, 12 members of state boards of medical examiners, 17 members of the U. S. Army Medical Corps and 10 of the U. S. Navy Medical Corps. Twenty authors, 14 bank presidents, 13 druggists, 9 postmasters, 8 missionaries, 8 members of city councils, 5 dentists, 5 editors, 2 lawyers, 4 police surgeons, 1 clergyman and 1 judge were included.

Association Officers—The obituaries published in 1932 of physicians who were or had been officers of the American Medical Association included 3 presidents, 1 vice president, 2 trustees, 1 treasurer, 11 section officers and 2 members of councils. Fifteen members of the House of Delegates, including a vice speaker, died during the year. Thirty-two presidents of state societies and 2 state secretaries were included among the officials.

CARBON MONOXIDE IN EVERYDAY LIFE

The changes in living conditions brought about by modern inventions have not always been unmixed advantages. Amid the improvements that contribute to comfort and satisfaction are occasional incidental factors that are not so welcome. Advancing civilization has not been entirely freed from menaces to human welfare, in fact, it has sometimes been directly responsible for the attendant development of new physiologic hazards. A formidable illustration is the increasing danger represented by the colorless and almost odorless gas carbon monoxide, CO. As has often been pointed out,¹ carbon monoxide, except for one reaction, is a physiologically inert gas, it combines with the hemoglobin of the blood to the exclusion of oxygen. Were it not for this one reaction, carbon monoxide would be classed with nitrogen and hydrogen as a simple asphyxiant. Animals that have no hemoglobin are quite normal in 80 per cent carbon monoxide and 20 per cent oxygen. The toxic action of carbon monoxide therefore, is exercised through the anoxemia resulting from the conversion of oxyhemoglobin to carbon monoxide hemoglobin, and the resulting asphyxia.

The facts about the distribution of carbon monoxide should be quite familiar by this time. According to Henderson and Haggard,¹ only in rare conditions does carbon monoxide appear in nature, it is, however, almost universally present wherever man lives and works. It usually originates from the incomplete combustion of carbonaceous material. Illuminating gas is one of the commonest sources of acute poisoning, many of these cases are suicidal. Coal gas, which is made by the destructive distillation of coal, contains from 4 to 6 per cent of carbon monoxide. Water gas, which is made by passing steam over heated coke, contains about 40 per cent of carbon monoxide. In England and the European continent, coal gas is chiefly used for illuminating gas. In American cities a mixture is usually supplied consisting largely of water gas enriched with either some coal gas or petroleum products to afford luminosity and raise the thermal value. Illuminating gas in the United States contains from 6 to 30 per cent or even more of carbon monoxide, generally it is between 20 and 30 per cent.

The "after damp" of coal mine explosions represents a long known modern hazard in which carbon monoxide is primarily involved. More recent is the potential danger of the automobile. The exhaust gas from internal combustion engines, Henderson and Haggard estimate, contains carbon monoxide in proportions ranging from a fraction of 1 per cent to 7 per cent or even higher. The variation depends on the proportion of air and gasoline in the mixture burned, the carbon monoxide increases with increase in the proportion of gasoline, that is, with a rich mixture. A rough estimate of the volume of carbon monoxide that an automobile may produce is 1 cubic foot (28 liters) per minute for each 20 horse power. This is sufficient to render the atmosphere of a single car garage deadly within five minutes, if the engine is run while the garage doors are closed. As has been explained, a man breathing such an atmosphere often falls helpless before he realizes that he is affected, hence many fatalities. In streets where traffic is congested, the content of carbon monoxide rises to about 100 parts per million of air, enough to cause slight headache after long exposure.

In a recent issue of *THE JOURNAL*, Gettler and Mattice² of Bellevue Hospital, New York, remarked that the ideal normal individual should have no carbon monoxide in his blood but that the average person under ordinary conditions is exposed so frequently to it that it is not possible to regard him as being carbon monoxide free unless procedures are employed which are suitable only for the detection of amounts known to be toxic. An effort was therefore made to ascertain what constitutes the "normal" content of carbon monoxide in human blood. In this instance, "normal" obviously refers to the level enforced by the environment of present-day life in various parts of the country.

¹ Henderson, Vandell and Haggard. *H. W. Noxious Gases*. New York: Chemical Catalog Company, 1927. Several of the statements above are taken from this excellent review.

² Gettler, A. O. and Mattice, Marjorie R. *The Normal Carbon Monoxide Content of the Blood*. *J. A. M. A.* 100:92 (Jan. 14) 1933.

A formerly unappreciated contributory factor lies in the components of tobacco smoke, which few persons escape, either because of their own use of smoking tobacco or of their proximity to smokers. Some investigators have regarded the absorption of carbon monoxide from tobacco smoke as negligible, despite the fact that considerable quantities of the objectionable gas are undoubtedly drawn into the mouths of smokers.

In the observations of Gettler and Mattice, the average content of carbon monoxide in the blood of eighteen persons living in New York City under conditions of minimal exposure was found to be 0.27 volumes per cent. This represents about 1 to 1.5 per cent of the hemoglobin combined with carbon monoxide. The average content of carbon monoxide in the blood of twelve persons confined to a state institution in an ideal rural locality was found to be 0.24 volumes per cent. Most of these showed a hemoglobin saturation of less than 1 per cent. The average content of carbon monoxide in the blood of twelve New York street cleaners was found to be 0.69 volumes per cent. This represents about 3 per cent saturation of the hemoglobin with carbon monoxide. The New York biochemists believe that smoking is apt to be the most conspicuous factor in determining the carboxyhemoglobin of an individual under normal conditions when he is not exposed to obvious high percentages of carbon monoxide. The quantities reported for the blood are far smaller than those which give rise to appreciable physiologic effects. Malaise may occur when one fifth of the circulating respiratory pigment is in combination with carbon monoxide. A knowledge of the facts should serve, however, to put us on our guard against an avertible potential modern menace to well being.

Current Comment

MEDICINAL LIQUOR BILL DIES WITH EXPIRING CONGRESS

The Celler-Copeland bill, initiated by the American Medical Association, to establish a rational system of regulating the medicinal use of alcohol, to replace the arbitrary, ill considered system now in force, died with the expiration of the Seventy-Second Congress. The bill, which would have saved the government \$110,000 a year, had the support of the Treasury Department. It had the approval of the Commissioner of Industrial Alcohol and the Director of Prohibition. It was designed to carry out the unanimous recommendation of the Wickersham Commission. It was unopposed by any organized body of prohibitionists. It had passed the House of Representatives, the Senate Committee on the Judiciary had recommended its enactment, and the bill was on the Senate calendar. When a motion was made to take it up for consideration, however, Senator Brookhart of Iowa threatened to filibuster against it during the remaining hours of the session, which marked the remaining hours of his official life, for his

constituents had already retired him to private life at the expiration of the Seventy-Second Congress, March 4. As a filibuster would prevent the Senate from considering not only this bill but any other legislation during the short time remaining to it, the motion to consider the bill was wisely withdrawn. Representative Emanuel Celler of Brooklyn, who introduced this bill in the House of Representatives, worked untiringly to procure its enactment in a form satisfactory to the medical profession. Too much cannot be said in appreciation of his efforts. In the Senate, Senator Royal S. Copeland of New York introduced the bill and stood sponsor for it, and did what he could to procure its passage, but, under the rules of the Senate, against the threatened filibuster he and all his fellow senators were powerless. The bill did not become a law, but the thanks of the medical profession are due Senator Copeland and Representative Celler for what they did in support of the measure.

MENCKEN AND MEDICAL CARE

In the *American Mercury* for March, Mr. H. L. Mencken, who comments pungently on most of the world's affairs, makes public his analysis of the final report of the Committee on the Costs of Medical Care. A considerable number of physicians have written to *THE JOURNAL* requesting that special attention be called to this analysis. Mr. Mencken first expresses concretely the major conclusions of the majority report, namely, that the right way to relieve people of the burden of medical care is to throw that burden on the taxpayers and to convert the doctors into public functionaries. He realizes that the increased cost of medical care has not meant increased income for the physician but that most of the money "has gone to the hospitals, and they have got it, not in the character of institutions for the care and cure of the sick, but in the character of luxurious hotels for the entertainment and flattery of the sick." He emphasizes also the desire to keep up with the Joneses as a part of the reason for the financial disaster associated with hospital bills and particularly in the field of obstetrics. As has been pointed out in these columns, a substantial part of the increased cost of medical service is due to new technics in medical science. On this point Mr. Mencken says:

Not a few of them call for expensive apparatus, and all of them call for kinds of skill that cannot be had for nothing. It is obviously far more costly to make a series of x-ray plates and cardiograms of the heart than it used to be to do the whole job with a stethoscope, or even with the naked ear, as was the custom when I was young. A Wassermann may not cost as much as a permanent wave, but it at least costs more than no Wassermann. And it is plainly more expensive to cut out a gangrenous appendix and nurse the patient back to health than it used to be to give him a dose of Glauber's salts and send for a clergyman.

Mr. Mencken realizes that the problem of the costs of medical care is merely a part of the difficult economic situation in which we find ourselves generally. He calls on physicians to oppose vigorously the attempts that are being made to socialize their profession and he stresses particularly the necessity for restoring the family doctor to the central place in medical practice.

He is not convinced that the formation of groups around hospitals will tend toward this end "The way to restore his old importance," he says, "is to restore his old functions, and that is certainly not going to be done by transferring even more of his patients to the hospitals." While he ends with a tribute to the profession, he also realizes the tendency toward the exploitation of the physician by uplifters in general.

I confess that it always irritates me to hear medical men denounced as prehensile, as is often done, not only by quacks, but also by persons who should know better. They are actually, with very few exceptions, fellows of a vast and innocent sentimentality. The great majority, indeed, might be described with perfect accuracy as easy marks. The men of no other profession are so facily operated on by specialists in other people's duties. They walk into the arms of every new uplifter who happens down the road. My hope is that the report of the Committee on the Costs of Medical Care, with its bald proposals to reduce them to a kind of peonage, will at last awaken them to the fact that they also owe some duties to themselves, and that, with everything else equal, the more they regard those duties the better they will be able to serve their actual patients.

Association News

THE MILWAUKEE SESSION Local Committee on Arrangements

The Local Committee on Arrangements and its various subcommittees under the direction of Dr Stanley J Seeger are actively engaged in perfecting arrangements for the Milwaukee Session. All subcommittees have been appointed and confirmed by the board of directors of the Medical Society of Milwaukee County. Very complete plans have been made for entertainment and for the comfort and convenience of those who attend the session. Dr Harry J Heeb, chairman of the Subcommittee on Hotels reports that the number of reservations already made indicates a large attendance. In order to prevent confusion and to insure good accommodations, hotel reservations should be made at the earliest possible time.

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts on Tuesday and Thursday from 9 15 to 9 20 a m (central standard time) over Station WBBM (770 kilocycles, or 389.4 meters). The subjects for the week are as follows:

- March 20 Kidney Stones
- March 22 Women Workers and Occupational Diseases

There is also a fifteen minute talk sponsored by the Association on Saturday morning from 9 45 to 10 o'clock over Station WBBM.

The subject for the week is as follows:

- March 25 Tuberculosis—History and Prevention

Adrenal Ablation and Renal Insufficiency—Our more recent work on dogs demonstrates that renal insufficiency is a constant finding after adrenal ablation and that complete restoration of kidney function follows administration of the cortical hormone with outpouring of urinary nitrogen chlorides, phosphates and other waste metabolites. Significant anatomical lesions have not been demonstrated in the kidneys of animals dying from adrenal insufficiency so it is evident that the renal lesion if such is present is a functional one and occurs in the absence of demonstrable anatomical injury.—Samuel W A and Pittman L L. The Adrenal Cortical Hormone *Medicine* 9:410 (Dec) 1922.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Personal—Dr Hugh C McRee, for years head of the Morgan County health unit, has been appointed health officer of Lee County, with headquarters at Opelika.—Dr John McLaughlin Forney, Tuscaloosa, addressed an open meeting at the University of Alabama School of Medicine, University, January 27, on "The Future of a Medical Career."

ARIZONA

Bill Introduced—H 227 proposes to authorize the state board of health to license persons to practice midwifery. Such licentiates may practice only in cases of normal delivery. They are to be forbidden to make vaginal examinations, to use instruments to aid delivery, to assist labor by any artificial, forcible mechanical means or to administer or prescribe dangerous or poisonous drugs.

CALIFORNIA

Dr Drummond to Give Lane Lectures—Dr John C Drummond, professor of biochemistry, University College, London, will deliver the twenty-fourth course of Lane Medical Lectures in Lane Hall, Stanford University School of Medicine, April 3-7, on "Recent Advances in the Biochemical Study of Nutritional Disorders." Titles of the individual lectures are "Chief Nutritional Disorders of Today How They Have Arisen, Changed Food Habits", "Protein Factors in Nutrition Pellagra", "Fats in Diet and Accessories Accompanying Fats", "Fat Soluble Vitamins," and "Water Soluble Vitamins." Professor Drummond will also give a lecture, April 11, at the university on "General Survey Lines of Future Progress."

Medical History Seminars—The California Medical History Seminar luncheon in honor of George Sarton, ScD, associate of the Carnegie Institution of Washington, D C, was held in San Francisco, January 21. Dr Sarton spoke on "The Slowness of Human Progress." There was also an exhibit commemorating the centennial of the publication of William Beaumont's "Experiments and Observations on the Gastric Juice and the Physiology of Digestion" in Plattsburg, N Y in 1833. At a similar luncheon in December, in honor of Dr and Mrs Charles Singer, London, England, Drs Sanford V Larkey spoke on "Berengario da Carpi" and Emmett L Rivard, "Traditions of Chinese Medicine." An exhibit in observance of the tercentenary of the birth of Antony von Leeuwenhoek was displayed.

COLORADO

Bill Introduced—H 189 proposes to create a board of chiropractic examiners and to regulate the practice of chiropractic. Chiropractic is defined as the science of locating and removing interference with nerve transmission. Licentiates are to be permitted to practice chiropractic, to use such sanitary and hygienic measures as are necessary to such practice, and to use the title of "Doctor" or "Dr" if the word "Chiropractor" or the letters "D.C." follow their names, but they are not to be permitted to practice surgery or obstetrics, or to prescribe or administer drugs or anesthetics. Under certain conditions such licentiates may be permitted to practice electrotherapeutics.

Society News—Dr Archibald J Chisholm, Denver, recently addressed the Colorado Society of Clinical Pathologists on "Relation of Pulmonary Tuberculosis to Anorectal Fistula Clinical, Pathological and Bacteriological Studies"—At a meeting of the Crowley County Medical Society in Ordway, January 10 Dr George B M Baker Rocky Ford, spoke on "Failing Heart in the Aged and Uses and Abuses of Digitalis" and Dr Earnest O McCleary "Necessity and Methods of Relieving the Suffering." Speakers before the society, February 12 included Drs James E Jeffery and William M Desmond on "Reminiscences of Past Medical Practice" and Postinfluenzal Infections, respectively.—Speakers before the Medical Society of the City and County of Denver February 7 were Drs Clarence B Ingraham Jr on "Iridodial Injections to Determine Patency of the Fallopian Tubes" Edward L Harvey, Cesarean Section, James Rudolph Jaeger, Treat-

ment of Brain Injury in the New-Born", Herman G Maul, "Physiology of Blood Transfusion," and Elbert B Swerdfeger, "Esophageal Ulcer"—Medical economics was discussed at the March 8 meeting of the Boulder County Medical Society, Boulder, by Drs John Andrew, Longmont, Oscar M Gilbert and Frank R Spencer, Boulder

DELAWARE

Bill Introduced—H 353 proposes a new medical practice act. The medical council, which now consists of the chief justice of the state and the presidents of the medical society and the homeopathic medical society, is to consist of the chief justice, two members of the medical society, two members of the homeopathic society, and one member of the state osteopathic society. The separate examining boards for nonsectarian physicians and for homeopaths are abolished and a single examining board is substituted, to consist of three nonsectarian physicians, three homeopathic physicians, and one osteopath. By implication, osteopaths are to be permitted to practice obstetrics and surgery if the bill becomes a law.

GEORGIA

Bill Enacted—S 142, eliminating that portion of the medical practice act directing the board of medical examiners to elect a secretary-treasurer from its membership, so as to conform with the terms of an act approved Aug 29, 1931, providing for a joint secretary of the several state examining boards, has been approved by the governor.

IDAHO

Bill Enacted—S 99, prohibiting the possession, sale or distribution of "anhalonium, otherwise known as peyote," has become a law.

ILLINOIS

Bill Introduced—H 433 proposes, in effect, that employees contracting any occupational disease in any employment be entitled to compensation.

Clinic for Treatment of Epidemic Encephalitis—The establishment of a comprehensive clinic for the treatment of epidemic encephalitis at the Dixon State Hospital has been announced. Dr Charles C Rowley will be the resident physician in charge. A small group of children from 6 to 16 years of age will be given special attention. Dixon State Hospital is the only institution in the state where patients with post-encephalitis can be legally committed.

Chicago

General Practitioner's Night—Rheumatism will be discussed in the program to be presented before the Chicago Medical Society, March 22, on "general practitioner's night." Dr Benjamin J Clawson, Minneapolis, will speak on "Etiology and Pathology of Acute Rheumatic Fever", Dr John S Coulter, "Physical Therapy in Chronic Arthritis," and Dr Emil G Vrtiak, "Classifications and Etiology of Chronic Arthritis."

Society News—Dr Charles G Mixter, Boston, will deliver the ninth Lewis Linn McArthur Lecture of the Frank Billings Foundation of the Institute of Medicine of Chicago, March 24, on "Meckel's Diverticulum and Its Surgical Significance."—Officers of the Chicago Orthopedic Club for the ensuing year are Drs Robert O Ritter, president, Jacob K Meyers, vice president, and Daniel H Levinthal, secretary.—Dr Oliver S Ormsby has been elected president of the Chicago Dermatological Society, Dr James H Mitchell, vice president, and Dr Max S Wien, secretary.—Dr Frances R Vanzant, Rochester, Minn, addressed the Chicago Council of Medical Women, March 3, among others, on "Interpretation of Gastric Analysis (Norms of Men and Women)."

Contagious Disease Division for Private Patients—A division for the treatment of private patients with contagious diseases has been opened at the Albert Merritt Billings Hospital, University of Chicago Clinics. Ten private rooms in the Billings Hospital are now available for this service, the number to be increased should the demand warrant it. The division is the only one of its kind in the city since the recent closing of the Durand Hospital. While the Chicago municipal contagious disease hospital and the Cook County Hospital accept indigent patients with contagious diseases, the Durand Hospital, a part of the McCormick Institute for Infectious Diseases, had been the only hospital where private patients with contagious diseases could be isolated. Directors of the institute were forced to close the Durand Hospital because of reduction in income.

INDIANA

Bill Enacted—H 100, giving to all hospitals treating persons injured through the fault of other persons, liens on all rights of action, suits, claims, judgments, settlements or compromises which may accrue to the injured persons by reason of their injuries, has become a law.

Society News—At a meeting of the Adams County Medical Society, January 13, in Decatur, Drs Alois B Graham and Joseph W Ricketts, Indianapolis, spoke on rectal diseases.—Medical economics was the subject discussed before the Clinton County Medical Society in Frankfort, January 5.—Dr John R Brayton, Indianapolis, addressed the Huntington County Medical Society, January 3, on the modern treatment of syphilis.—Dr Murray N Hadley, Indianapolis, addressed the Hendricks County Medical Society, January 20, on diseases of the gallbladder, hernia and appendicitis.—The Wayne-Union County Medical Society, Richmond, heard Dr Frank M Coppock, Jr, Cincinnati, January 19, in a discussion of extra-uterine pregnancy.—Dr John H Warvel, Indianapolis, addressed the Orange County Medical Society at West Baden, March 7, on "Treatment of Anemias."—Dr Robert M Moore, Indianapolis, addressed the Tippecanoe County Medical Society at Lafayette, March 9, on "Cardiac Patient as a Surgical Risk."—The program of the Indianapolis Medical Society, February 28, was arranged for the general practitioner, subjects discussed were obstetrics, anesthesia and urologic problems, with Drs Ernest O Asher, New Augusta, Fred A Thomas and James F Balch, Jr, Indianapolis, as speakers.—Dr Harold Swanberg, Quincy, Ill, addressed the Henry County Medical Society at Newcastle, March 9, on "Radium Therapy in General Practice."

IOWA

Bill Introduced—H 522 proposes that no form of vaccination or inoculation be made a condition precedent to admission to any public or private school or college or to the exercise of any right, the performance of any duty, or the enjoyment of any privilege.

Opposition to Majority Report—That the demands of the constantly changing social structure cannot be met by adhering to the lines advocated in the majority report of the Committee on the Costs of Medical Care was the theme of a resolution unanimously adopted at a meeting of the Woodbury County Medical Society in Sioux City, February 23. The report was discussed by Drs Oliver J Fay, Joseph Brown and Robert L Parker of Des Moines, and William Jepson, Wallace S Petty and James E. Reeder of Sioux City. About 200 physicians, dentists, pharmacists and veterinarians from northwestern Iowa, northeastern Nebraska and southeastern South Dakota attended the meeting.

KENTUCKY

Personal—Dr George L Thompson, Owensboro, has resigned as health director of Daviess County and Dr Lawrence Hubert Medley was elected to succeed him. Dr Thompson is now health officer of McLean County.

LOUISIANA

Personal—Dr Henry Dickson Bruns, emeritus professor of diseases of the eye, Tulane University of Louisiana School of Medicine, New Orleans, was honored recently when a bronze plaque was placed on the door of the diagnostic room for the eye department of the Eye, Ear, Nose and Throat Hospital. This room has been dedicated to Dr Bruns in recognition of nearly fifty years' service in the hospital.

University News—The Commonwealth Fund of New York recently granted \$25,000 to Tulane University of Louisiana School of Medicine, New Orleans, to help in meeting the expenses of the Hutchinson Memorial Clinics for the year 1932-1933. Two of the clinics, those of medicine and surgery, were opened in October. With the aid of the grant, the work was expanded, the *Tulane News-Bulletin* states, and other clinical departments were put in operation as rapidly as possible. Dr Herbert B Rothschild has been appointed assistant in pediatrics in the school of medicine.

MAINE

Bill Enacted—H 217, to amend the law prohibiting the practice of vivisection in schools supported wholly or in part by public money by making a violation of the act punishable by a fine of from \$10 to \$25 and by striking out the provision in the law making it mandatory for the commissioner of education to revoke the certificate of any teacher violating the act, has become a law.

MICHIGAN

Physicians in the Legislature—The following five physicians are serving in the fifty-seventh Michigan legislature

James T. Upjohn, Kalamazoo senate, graduated from the University of Michigan Medical School, Ann Arbor, 1886
Henry E. Perry Newberry, house of representatives, graduated from Michigan College of Medicine and Surgery, 1897 and the Northwestern University Medical School, Chicago 1904
Duncan A. Cameron Alpena, house of representatives, graduated from McGill University Faculty of Medicine, Montreal 1885
John G. Rutison Lansing, house of representatives graduated from University of Michigan Medical School, Ann Arbor, 1903
Edward F. Fisher Dearborn, house of representatives, graduated from Detroit College of Medicine and Surgery, 1906

Graduate Conference—The Michigan State Medical Society and the department of postgraduate medicine of the University of Michigan, Ann Arbor, cooperated in a graduate conference in Saginaw, March 9. The program included talks by Drs. Frederick C. Warnshuis, Grand Rapids, on "Principles in Treatment of Fractures" and "Economic Problems Involving Medical Practice", Richard M. McKean, Detroit, "Nephritis" and "Serology", Robert C. Moehlig, Detroit, "Endocrinological Factors" and "Endocrinological Therapy", Nathan Sinai, Ph.D., Ann Arbor, discussed "Adequate Medical Care". The session was concluded with a round table discussion of "community interest and problems".

MINNESOTA

Bills Introduced—S 743 proposes to accord hospitals treating persons injured through the fault of other persons liens on all claims for damages, rights of action, judgments, settlements or compromises accruing to the injured persons by reason of their injuries. H 1284 proposes to regulate the sale of bakery goods marketed as beneficial for diabetes. Such foods cannot contain gluten or whole wheat flours and must be labeled with a statement of the flour content and that each loaf contains not to exceed 15 per cent of carbohydrate content.

MISSOURI

Personal—Dr. Joseph Mülzer of Heidelberg University, Germany, was guest of honor at a recent reception given by Dr. and Mrs. Carl Barck, in honor of his appointment to the department of ophthalmology at St. Louis University School of Medicine, St. Louis. Dr. Mülzer is the recipient of the Carl Barck Ophthalmology Fellowship, the funds for which were provided by a group of Dr. Barck's friends on the golden anniversary of his graduation from the University of Freiburg, Baden, Germany, celebrated last year.

Graduate Course in Obstetrics—The Kansas City General Hospital began a five day graduate course in obstetrics and gynecology, February 20, consisting of six one hour classes daily, with operative clinics within the hospital. The second day of the course was a joint meeting with the monthly hospital clinic of the Kansas City Southwest Clinical Society. Dr. Wendell M. Long, Oklahoma City, as the guest speaker addressed this session on "Pelvic Infections". Local physicians conducted the course. If the demand warrants, similar courses will be presented later.

Society News—The speaker at a joint meeting of the Jackson County Medical Society and the Wyandotte County Medical Society, Kansas City, February 21, was Dr. Wendell M. Long, Oklahoma City, on "Cancer of the Uterus—Its Prevention and Early Diagnosis".—At a meeting of the St. Louis Medical Society, February 21, Dr. Frank J. Taunter spoke on "Homotransplant of Parathyroid Gland—Preliminary Report of Transplantation of Parathyroid for Tetany of Four and One-Half Years' Duration," and Col. George A. Skinner, Omaha, "Saneness in Maintaining Physical Efficiency". At a meeting of the society, February 14, Drs. George Gellhorn and Lee D. Cady discussed a "New Treatment for Trichomonas Vaginitis" and Charles H. Neilson, "Effect of Weather in Human Conduct and Particularly Its Effect in Disease."

NEBRASKA

Computation of Charity Work—Omaha physicians and hospitals gave free services with an estimated value of \$673,898 to the indigent in 1931, according to a report to the Omaha-Douglas County Medical Society by Dr. Earl C. Sage. The report contrasts this amount with \$450,000 collected by the community chest from the whole city for charity. In tabulating his report Dr. Sage arbitrarily chose a value of \$50 for each surgical operation, \$2 for consultations in outpatient departments, and \$25 a week for medical services in the hospital. Taxpayers contributed for care of this group through funds for the city health department, county hospital

and county physician, \$253,414. In 1926, while he was secretary of the society, Dr. Sage made a similar compilation, which showed that charity work done by physicians amounted to \$476,769, estimated on the same scale as that for 1931.

NEW JERSEY

Bills Introduced—S 226, to amend the laws relating to the practice of osteopathy, proposes, in effect, to permit osteopaths to practice medicine and surgery without restriction. A 289 proposes to prohibit the sale or other distribution of barbitol or any other hypnotic or somnifacient drug, except on the written prescription of a licensed physician, dentist or veterinarian. A 317 proposes to authorize the sexual sterilization of certain socially inadequate inmates of state institutions. A 327 proposes to create a board of naturopathy and to regulate the practice of naturopathy. Naturopathy is defined as that system of the healing art which uses and prescribes the use of the combined psychological, mechanical and material sciences of healing, as taught in legally incorporated schools, institutes and colleges of naturopathy, including psychotherapy, mechanotherapy, internal and external hydrotherapy, electrotherapy, pneumotherapy, neuropathy, physiotherapy, chromotherapy, corrective and orthopedic gymnastics, spondulotherapy, geotherapy, dietetics, biochemistry, phytotherapy.

NEW MEXICO

Bill Passed—H 347, to appropriate \$215,000 to erect and equip a hospital for the treatment of the insane, at Las Vegas, has passed the house.

NEW YORK

Bills Introduced—A 1736, to amend the workmen's compensation act, proposes, in effect, to make compensable any and all disabling diseases and disabling illnesses contracted in the course of any employment covered by the act. A 1737 proposes to create in each public welfare district a central bureau or division of hospital clinics, to promulgate regulations to govern applications for free medical, surgical and other treatment in clinics and in hospitals.

Personal—Dr. Louis C. Kress has been appointed assistant director of the division of cancer control, State Institute for the Study of Malignant Disease, Buffalo. He has been attending physician at the institute since 1920.—Dr. George Herbert Ramsey, associate professor of epidemiology, Johns Hopkins School of Hygiene and Public Health, Baltimore, has been appointed director of the division of communicable diseases in the state department of health. Among other positions Dr. Ramsey has held is that of deputy commissioner of health with the Michigan state department of health. During his affiliation with Johns Hopkins, he spent sixteen months with the West African Yellow Fever Commission under the auspices of the International Health Division of the Rockefeller Foundation.—Dr. Harold Jackson Davis, epidemiologist of the state health department, has been appointed director of medical care for the Temporary Emergency Relief Association. He will represent the department in assisting departments of welfare in the provision of home medical care.—Dr. Allen W. Holmes, Watkins Glen, was recently elected president of the Central New York Roentgen Ray Society at a meeting in Syracuse.

New York City

Afternoon Lectures in Brooklyn—The schedule of Friday afternoon lectures sponsored by the Medical Society of the County of Kings during March is as follows:

Dr. Charles H. Andrew, "The General Practitioner and Eye Conditions"
Dr. Frank B. Cross, "The Patient with Nephritis"
Dr. Joseph B. L. Episcopo, "Disabling Feet"
Dr. Eli Jefferson Browder, "Head Injuries"
Dr. Maximilian A. Goldzieher, "Physiology and Pathology of the Pituitary Gland and Their Clinical Aspects"

Society News—At a meeting of the Medical Society of the County of Kings, February 21, speakers were Drs. Charles Gordon Heyd, on "Problems of Medical Practice and the State Society," and Emil Koffler, "Compulsory Health Insurance Abroad" and Mr. Bailey B. Burritt, "Common Ground in the Next Steps for the Medical Profession and the Profession of Social Work."—At a meeting of the committee on cardiac clinics of the New York Tuberculosis and Health Association, February 28, Drs. Eugene M. Landis, Philadelphia, and John Murray Steele presented papers on "The Movement of Blood Through the Capillary Walls" and "Fever of Unexplained Origin in Heart Failure," respectively.—The twelfth afternoon lecture of the New York Academy of Medicine was presented, February 10, by Dr. Albert A. Epstein, on "Medical and Surgical Complica-

tions in the Diabetic Their Diagnosis and Treatment" Dr William Charles White, Washington, D C, delivered the sixteenth lecture, March 10, on developments in the study of tuberculosis

NORTH CAROLINA

Bills Introduced—S 215, to amend the workmen's compensation act, proposes to make the employer liable for such medical, surgical, hospital and other treatment as may be reasonably required by an injured employee for a period not exceeding thirty weeks from the date of the injury. An injured employee is to have the right to select not to exceed two physicians of his choice, who are to be paid by the employer or by the industrial commission the same fees as are fixed by the medical society in the town or county where the physicians reside. H 765 proposes to require persons employed as nurses, maids, house-workers or cooks to be examined annually by licensed physicians to ascertain whether they are free from venereal disease or from tuberculosis. The bill, however, is to apply only to cities and towns of 1,000 population or more.

OHIO

Personal—Dr Charles A. Neal, Cincinnati, former state health officer, was elected president of the Ohio Public Health Association recently. Dr Gilbert F. Thompson has been appointed surgeon to the Ohio Soldiers' and Sailors' Home Hospital, State Soldiers' Home, to succeed the late Dr John T. Haynes. Physicians of Shelby and Mansfield gave a dinner in honor of Dr Matthew T. Love, Shelby, February 2, in recognition of his completion of fifty years of medical practice. Dr Richard A. Bolt, Cleveland, will leave the first week in April to spend about six months in Germany and Austria studying maternal and child welfare conditions under a grant from the Oberlaender Trust Fund and the Carl Schurz Foundation.

Society News—Dr Samuel Brown, Cincinnati, addressed the Montgomery County Medical Society, Dayton, February 3, on abdominal tumors. Drs Adolph O. Pfingst, Louisville, Ky., and Joseph Stein addressed the Cincinnati Academy of Medicine, March 13, on "Endarteritis Obliterans with Unusual Ocular Findings" and "Treatment of Hay Fever," respectively. Dr Fred W. Rankin, Lexington, Ky., addressed the academy, February 13, on surgery of the colon. Dr Dean Lewis, Baltimore, President-Elect, American Medical Association, addressed the Columbus Academy of Medicine, January 30, on "Arteriovenous Aneurysm." Dr Louis J. Karnosh, Cleveland, will address the Mahoning County Medical Society, Youngstown, March 21, on "Highlights of Brain Function." Dr Edward Starr Judd, Rochester, Minn., spoke, February 21, on acute cholecystitis. The Doctors' Symphony Orchestra of Akron gave a concert in Canton, January 26.

OREGON

Bill Enacted—S 235, providing that the state board of health shall consist of eight members, seven of whom shall be physicians and one a dentist, has become a law.

RHODE ISLAND

Dr Cary Speaks at Annual Dinner—Dr Edward H. Cary, Dallas, Texas, President of the American Medical Association, was the guest of honor at the annual dinner of the *Rhode Island Medical Journal* in Providence, February 20, attended by nearly 200 physicians. Dr Cary discussed economic questions now before the medical profession and Federal Judge Ira Lloyd Letts, questions affecting both the medical and the legal professions. Dr Frederick N. Brown, editor of the journal, was toastmaster. A brief case and a Texas flag were presented to Dr Cary, who was introduced by Dr Norman Darrell Harvey, Providence, president of the Rhode Island Medical Society.

TENNESSEE

Bills Introduced—H 427 proposes that, in the distribution of a decedent's estate, claims for the services of the attending physicians during the decedent's last illness and claims for funeral expenses shall have priority over all other claims, except necessary administration expenses. S 224, to amend the workmen's compensation act, proposes that an employer shall supply an injured employee such medical and surgical treatment as may be reasonably required for thirty days after receiving notice of injury, but the total liability of the employer is not to exceed \$300 for physicians' bills and \$300 for hospital expenses.

Health at Memphis—Telegraphic reports to the U. S. Department of Commerce from eighty-five cities with a total population of 37 million, for the week ended March 4, indicate that the highest mortality rate (179) appeared for Memphis and the rate for the group of cities as a whole, 115. The rate for Memphis for the corresponding week of 1932 was 177 and that for the group of cities, 134. The annual rate for the eighty-five cities for the nine weeks of 1933 was 125, as against a rate of 123 for the corresponding period of the previous year. Caution should be used in the interpretation of weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for a large area or that they have a large Negro population may tend to increase the death rate.

TEXAS

Bill Introduced—S 178, to amend the workmen's compensation act, proposes to require the employer of an injured employee to furnish such medical, surgical and other treatment, nursing and hospital service, as the nature of the injury or the process of recovery may require. Under the present law, the employer need only furnish such services for the first four weeks after an industrial injury.

WEST VIRGINIA

Society News—Dr Henry J. Gerstenberger, Cleveland, presented a "Cinematographic Demonstration of Various Conditions and Diseases of Infants and Children" before the Ohio County Medical Society, Wheeling, February 17. Dr Deryl Hart, Durham, N. C., addressed the society, February 3, on "Treatment of Empyema by Tidal Irrigation." A symposium on tuberculosis was presented before the Raleigh County Medical Society, January 24, at a meeting at Rutherford Sanatorium, Beckley, with the following speakers: Drs George H. Barksdale, and Russel Kessel, Charleston, Tyler R. Boling and George F. Grisinger, Beckley. Drs Walter N. Rowley and John C. Matthews, Huntington, addressed the Logan County Medical Society, Logan, January 18, on "The Place of Low Cervical Cesarean Section in Pathological Labors" and "Fallacies in Urologic Diagnosis," respectively.

Bills Introduced—S 160 and H 536, to amend the laws relating to the practice of midwifery, propose that all persons of good moral character and free from infectious disease who present letters of recommendation from two reputable citizens of the state, by whom they have been employed as midwives, are to be licensed to practice midwifery, without examination. H 511, to amend the chiropody practice act, proposes that all applicants for licensure shall be graduates of reputable high schools and graduates of schools of chiropody recognized by the state department of education as being of the proper standard. H 451 proposes to require physicians making medical or surgical examinations of patients to furnish on demand of their patients detailed reports in writing of such examinations. Every operator or owner of an x-ray machine must, on the request of persons examined, furnish copies of the roentgenograms made.

WISCONSIN

Speakers' Bureau Organized—Seventy Wisconsin physicians have volunteered their services as speakers for county medical societies in cooperation with a speakers' bureau organized by the State Medical Society of Wisconsin, according to a recent announcement. These physicians have offered to speak at county society meetings within a radius of 75 miles from their homes. It is expected that other speakers will be added to the lists as the plan is expanded. Dr Arnold S. Jackson, Madison, is chairman of the committee on scientific work, which arranged the new bureau.

Fifty Years in Practice—Dr Frank S. Wiley, Fond du Lac, was the guest of honor at a banquet, February 20, at St. Agnes' Hospital given by the Sisters of St. Agnes and the Fond du Lac Medical Society, marking the fiftieth anniversary of his entrance into medical practice. Dr Stephen E. Gavin presided and eulogies of Dr Wiley were made by various physicians and other citizens, including Drs Stanley J. Seeger, Milwaukee, Otho A. Fiedler, Sheboygan, Clarence W. Hopkins, Chicago, Frank Gregory Connell, Oshkosh, David V. Meiklejohn, Fond du Lac, and Attorneys L. A. Williams and F. A. Foster. A leather bound testimonial book containing the names of the guests and a complete report of the dinner was presented to the guest of honor. Dr Wiley, who is chief of staff at St. Agnes' Hospital, was graduated from Rush Medical College, Chicago, in 1883.

GENERAL

Negro Health Week—The nineteenth annual Negro Health Week will be observed the week beginning April 2. The celebration is under the auspices of the Tuskegee Negro Conference, the National Medical Association, the National Negro Business League and the National Negro Insurance Association, in cooperation with the U S Public Health Service.

Listing of Specialists—At the annual Congress on Medical Education and Licensure in Chicago, February 13, a resolution was adopted endorsing a plan for the listing of specialists by the Council on Medical Education and Hospitals of the American Medical Association in the manner it now designates those specializing in radiology and pathology. Dr Ray Lyman Wilbur, Stanford University, Calif, chairman of the council, outlined the plan in an address before the congress.

Tri-State Meeting—The thirty-fifth annual session of the Tri-State Medical Association of the Carolinas and Virginia was held in Greenville, S C, February 13-15. Dr Francis B Johnson, Charleston, S C, was elected president to succeed Dr Clarence A Shore, Raleigh, N C, who died three days before the meeting. Vice presidents elected were Drs Charles N Wyatt, Greenville, for South Carolina, John W Davis, Jr Lynchburg, for Virginia, and Foy Roberson, Durham for North Carolina. Dr James M Northington, Charlotte, N C, was reelected secretary. Dr William W Duke, Kansas City, Mo, was the guest speaker, giving an address on allergy at the annual dinner.

Change in Status of Licenses—The Pennsylvania State Board of Medical Education and Licensure recently reported the revocation of the license of Dr Walter W Senn, Williamsport, Nov 30, 1932 because of narcotic addiction. The state board of medical examiners of Arkansas revoked the license of Dr Junius Ruth Rison, at a meeting, Nov 8, 1932, for chronic and persistent inebriety. The license of Dr Benjamin H Smart was revoked, January 3, by Justice Daniel W O'Donoghue of the Supreme Court of the District of Columbia. Dr Smart was convicted on the charge of criminal abortion and sentenced to two years in jail. At a meeting of the Virginia State Board of Medical Examiners, Dec 7-11, 1932, the license of Dr George H Benton, formerly of Coral Gables, Fla, was revoked on account of his conviction for violation of the Harrison Narcotic Act.

Medalist and Lecturer Selected—Alfred Newton Richards, Sc D, since 1910 professor of pharmacology, University of Pennsylvania, Philadelphia will be awarded the Kober Medal for 1933 by the Association of American Physicians during its annual meeting in Washington D C, May 9, in recognition of his work on diseases of the kidney. The medal is provided by the George M Kober Foundation of Georgetown University, Washington, which was created in 1923 by the late Dr George M Kober, former dean of the medical school. Dr Rolla E Dyer of the U S Public Health Service, Washington, has been designated as the Kober Lecturer for 1933 by the Association of Military Surgeons of the United States, under the terms of the foundation. He will deliver the lecture, March 25, at Georgetown University. Dr Dyer became infected with typhus fever last fall from the bite of a rat flea while conducting experiments.

Monograph on the Common Cold—The Pickett-Thompson Research Laboratory of London, England has published a Monograph on the Common Cold. This the eighth volume to come from this laboratory, comprises 699 pages and 51 full page plates, with especial reference to the part played by streptococci pneumococci and other organisms. The need for volumes of this kind is obvious when it is realized that there are at least 50,000 research papers published annually on biologic problems. The authors have reviewed the enormous number of research papers on the common cold and assembled the knowledge that has been acquired by thousands of workers on this subject. This monograph in addition to the review of the literature presents the research of the authors which has covered a period of fifteen years. They have studied intensively a comparatively small number of cases, believing that more information is likely to be obtained by protracted and careful bacteriologic investigations on a small number of persons than by giving less study to each of a much larger number. The authors are convinced that the common cold is not a single definite disease. They believe in the plurality of colds caused by different species of bacteria and that there are pneumococcal colds streptococcal colds colds caused by the influenza bacillus and colds caused by the M catarrhals. Among the chapters in this monograph are the following: The Epidemi-

ology of the Common Cold, The Part Played by Chills in the Causation of Colds, Other Factors Which May Cause a Predisposition to Colds, The Bacteriology of the Trachea, Bronchi and Alveoli, The Bacteriology of the Normal Mouth, The Structure and Physiology of the Nose, The Prevention of Colds and Influenza, Vaccines in the Prevention and Treatment of the Common Cold, Bacteriology of Nasal Sinusitis, and Noncontagious Colds.

FOREIGN

Mental Hygiene Congress—In a list of international congresses to be held in Europe in 1933, published in THE JOURNAL, January 21, page 199, an "International Congress on Mental Hygiene, Rome, in September" was incorrectly included. The next International Congress on Mental Hygiene will be held in Paris in 1935, according to Mr Clifford W Beers, secretary of the international committee. The meeting to be held in Rome, September 27-28, will be the Second European Reunion on Mental Hygiene. Subjects to be discussed at this meeting will be "Mental Hygiene and School," "Extrahospital Assistance to Persons Predisposed to Mental Illness and to Patients Dismissed from Psychiatric Hospitals," and "Importance of the Family for Mental Hygiene." Information concerning this meeting may be obtained from the secretary of the Italian League for Mental Hygiene, Via Masaccio 119, Florence, Italy.

Meeting of Chinese Medical Association—The first general conference of the newly formed Chinese Medical Association was held in Shanghai, Sept 28-Oct 5, 1932 under the presidency of Dr Way-Sung New. This society is an amalgamation of the China Medical Association, founded by and largely composed of missionaries, and the National Medical Association of China, founded in 1915 by Chinese practitioners trained in western medical colleges. Representatives from remote provinces of the republic of China as well as visitors from Manila, Korea and Great Britain attended. Major P G Edge, assistant lecturer in epidemiology and vital statistics, London School of Hygiene and Tropical Medicine, delivered the principal lecture of the conference, on "The Importance of Statistics in Medicinal Research and Practice." Major Edge has been lent for six months to the Henry Lester Institute, Shanghai. The first National Conference on Leprosy in China and meetings of the Chinese Society of Microbiology and the Chinese Physiological Society were held during and immediately following the general conference.

Deaths in Other Countries

Sir William Taylor, since 1922 regius professor of surgery, Dublin University, Dublin Ireland, and from 1927 to the time of his death, president of the Royal Academy of Medicine in Ireland, author of many papers on surgery, suddenly, in Dublin, aged 61.

Government Services

Medical Reserve Officers' Training School

A training period for medical department reserve officers of the army and navy was conducted at Washington University School of Medicine, St Louis, February 12-25, through the cooperation of the faculty of the school and the medical departments of the two branches of the service. The training was also open to officers of the National Guard. The program of clinics was under direct supervision of the faculty of Washington University School of Medicine, and the military instruction under that of Col George A Skinner, surgeon of the Seventh Corps Area, and Lieut Commander Reuben H Hunt, Medical Corps, U S Navy.

W G Campbell Heads Food and Drug Administration

Walter G Campbell, director of regulatory work of the U S Department of Agriculture since 1923, has resigned and that position has been abolished. Mr Campbell will henceforth be chief of the Food and Drug Administration, over which he has had jurisdiction as director of all the department's regulatory work. Secretary Hyde announced that under Mr Campbell's direction the law enforcement activities of the department have now been assigned to the various bureaus so that a director of regulatory work is no longer necessary.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Feb 18, 1933

Ignorance of the Ultimate Causation of Disease

In a characteristically philosophic and stimulating address to the Guild of Public Pharmacists, Mr Wilfred Trotter has pointed out how important is the causation of disease and how great is the want of exact knowledge on the subject. The fundamental activity of medical science, he says, is to determine the ultimate causation of disease, but though this sounds like a commonplace it is not kept clearly in mind. The brilliance of the great discoveries that have elucidated the processes of disease tend to obscure the fact that many of them tell nothing about the ultimate causation. Recent progress in knowledge of the internal secretions in the production of symptoms has contributed but little enlightenment in the matter of ultimate causes. Much of the work, though of the greatest value, has been on the physiologic level and has scarcely penetrated fundamental pathology.

A consideration of the actual situation as regards knowledge of the causation of disease reveals that only six agents can be enumerated: injury, malformation, defect of diet, poisoning, infection and neoplasm. Two of these—malformation and neoplasm—are not primary in a strict sense, since in time they will almost certainly be resolved into other factors. Thus only the other four are left. Diseases can be classified into three groups: (1) those which can be assigned with certainty to one of the four causes enumerated, (2) those which have been assigned with more or less probability, and (3) those the cause of which is unknown. The rate at which diseases pass over from the third to the first group is now slow and tends to become slower. Hence the question arises whether a time may not come when the application of known principles to the causation of disease will be at a standstill. Will further explanation depend on the discovery of some new principle comparable to the microbe and the vitamin—the two great developments of the last sixty years? Such common and serious diseases as exophthalmic goiter, diabetes and multiple sclerosis have been investigated for a long time and with increasing refinement of method, yet, however much is learned of their mechanism, nothing is known of their ultimate causation.

In the last sixty years, two wholly new causes of disease have been discovered—microbic infection and vitamin deficiency. The first explained a group of diseases with a certain broad clinical resemblance, but the diseases due to the second show differences of the widest kind, such as those between rickets, beriberi and scurvy. Moreover, the deficiency diseases tend to mimic the diseases caused by other agents, as shown for example, by the resemblance between vitamin B deficiency and alcohol poisoning, each with its acute cerebral symptoms and chronic peripheral neuritis, and by the resemblance of scurvy to an infection. The discovery of deficiency diseases has thus disclosed that allied causes may produce clinical effects showing no hint of any kind of relation and thus made it more difficult to get any hint from clinical phenomena as to new prime agents of disease.

Up to the present, medicine has almost wholly avoided the burden of measurement and made progress by qualitative methods. Perhaps the main harvest of these methods has been garnered and an exact and exhaustive numerical exploration of the facts of disease will have to be undertaken. The practical success and continued progress of medicine tend to obscure the fact that it is without precise data, consisting merely of approximations.

The Cost to Hospitals of Automobile Accidents

The expense of traffic accidents falls with especial severity on hospitals situated on a main road and equipped only for the service of the district. Such hospitals may have their finances deranged by the great demand on their resources for the treatment of injured persons from far and near. In the road traffic act of 1930 a clause was inserted which enables hospitals to recover costs from insurance companies only when the motorist involved is found liable for the accident and when the injured party is an inpatient. At a meeting of the Association of Hospital Officers, Mr C M Power produced figures to show that the hospitals are successful in recovering costs in less than 35 per cent of traffic road accidents treated in their wards, while they are precluded from recovering the cost of treatment of the thousands of automobile accidents treated in their surgeries. When the cost of subsequent outpatient treatment of surgical cases is added, the cost is substantial. An amending bill has been drafted that would enable the hospitals to recover the cost of treating road accidents unless the accident is proved to be due to the negligence of the person injured. Owing to the onus now put on the patient to prove the negligence of the driver of the car and to the fact that the great majority of the patients taken to hospitals are poor and unable to face the possibility of legal costs, the hospitals are placed at a disadvantage in prosecuting claims for maintenance. In the case of children it is seldom possible to obtain evidence to assist parents in their claim for compensation. Figures for eighteen hospitals for 1932 show that the cost of treating 2,692 patients was \$120,000, of which only \$30,000 had been recovered from insurance companies. The constructive proposals put forward were that every hospital should follow up its claim for costs of maintenance and should accept no compromise where liability was acknowledged, that hospitals should endeavor to come to a better understanding with insurance companies, arranging a fixed charge of maintenance with them, and that a panel of lawyers should be appointed to assist patients in the prosecution of claims. It was also suggested that representations be made to the minister of transport on the hardship imposed by limitation of the allowance to hospitals of a maximum of \$125 per patient.

A New Medical Journal The Medico-Legal and Criminological Review

The Medico-Legal Society, which formerly published an annual volume of transactions, has decided to incorporate these in a quarterly medical journal in order that the papers of the society may become available to readers interested in medico-legal subjects soon after delivery. There will also be a review of the medicolegal material appearing in contemporary foreign journals not usually seen by the members of the legal and medical professions. It is also intended to include reports of proceedings of foreign medicolegal societies and reviews of books. The joint honorary editors, Dr Gerald Slot and Mr Everard Dickson, will endeavor to maintain a balance between the medical and legal aspects, so that the material provided will be useful to both physicians and lawyers. The *Review* will be issued free to members of the Medico-Legal Society; for others the annual subscription will be \$3 per annum. The publishers are Balliere, Tindall & Cox, Henrietta Street, London, W C 2. The principal papers in the first issue are on "Medico-Legal Practice," by Sir John Collie (an authority on malingering in this country) and the "Medico-Legal Significance of Impotence in the Male and Female." The abstracts are a valuable feature. They are classified into the following sections: criminal and social prophylaxis (sterilization of defectives), drunkenness and its medicolegal aspects, forensic obstetrics, forensic psychiatry and psychology, injuries, insurance medicine, occupational diseases, paternity and blood grouping, poisoning, therapeutic accidents and medical negligence, violent

death from physical causes. The new journal should certainly supply the wants of physicians, lawyers and others interested in medicolegal subjects. It is the only journal dealing exclusively with these subjects published in the English language.

PARIS

(From Our Regular Correspondent)

Feb 1, 1933

The Veterans, the Budget and a Tax on Physicians

The difficulties the government is encountering in endeavoring to balance a budget that shows now a deficit of more than \$450,000,000 compel it to seek new sources of revenue. Everybody believes that the deficit is due to the extravagance with which, during the recent prosperous years, the ministries increased the salaries of civil servants, pensioned large numbers of persons, and created a ruinous social insurance system and retirement at age 50 for all old soldiers not only of the World War but of all the campaigns carried on by France in the colonies, in Syria and in Morocco, since 1870. The total number of veterans is 4,000,000, and the number is increasing every day, owing to the fact that, through political favoritism, persons who never left their homes are granted pensions as ex-service men. The government sought to reduce by merely one tenth all the salaries and pensions, but it encountered formidable resistance, supported by the members of parliament for whom all these beneficiaries constitute a powerful electorate. It has not had the courage to suppress the compulsory social insurance system, in spite of the evidence of its destructive effects. It has preferred to seek an increase of the revenue from the existing taxes and duties, and contemplates more particularly increases in the taxes paid by the liberal professions—the lawyers and the physicians. The latter especially appear to be singled out. They are accused of always making inaccurate declarations of their professional income, owing to the fact that the government cannot exercise any adequate supervision of their revenues. The physician who receives a fee from his client in his office enters, it is alleged, whatever he likes in his financial record. The law has supported him in his refusal to open his records to the inspection of the agents of the national treasury, since the right of privileged communication entitles him to keep secret the names of his patients. The financial minister is contemplating requiring the physicians to issue clients' receipts for all sums paid to them, and to fill out, at the same time, stubs showing the amount received but omitting the name. The stubs would be checked up, each year, by the agents of the national treasury. The Confederation des medecins de France immediately filed an energetic protest against any such project which would incite the discontented client to become an informer against his physician, in case the latter had committed any irregularity in making out the receipts or the stubs. Furthermore, every physician gives a large number of free consultations to members of his family, to his friends and in the dispensaries. It has been suggested also that every prescription of a physician in order to be filled by a pharmacist be required to bear a stamp supplied by the physician, the denomination of the stamp to vary with the amount received for the consultation. These stamps would constitute a special tax imposed on the physician. The pharmacists themselves protested against such an innovation as physicians would be inclined to write fewer prescriptions. Finally, it has been suggested that a special tax be levied on the physician the amount to be determined by the fiscal agent on the basis of his presumed income and his mode of living—amount of rent paid, number and style of vehicles, number of servants and the like. In case of disagreement a special commission including a physician, would establish the probable amount of income. But such a basis would result in numerous forms

of injustice, since the rent paid by the physician depends on the size of his family, whereas these expenditures may be supplied by his personal fortune and that of his wife, which in some instances would exceed by far the strictly professional income. That is true particularly in the case of well-to-do physicians who have few clients and who devote themselves chiefly to scientific researches. At all events, the medical profession is being threatened with various unjust proposals.

The Contagiousness of Epidemic Encephalitis

Although epidemic encephalitis is still obscure as to its origin, there appears to be no question about its being contagious. Addressing the Societe des medecins des hopitaux de Paris, Mr. Renaud, and later Mr. Netter, emphasized the long period during which patients who have recovered or who have become affected with Parkinson's disease remain germ carriers. They cited numerous cases in point, particularly cases of parkinsonism of long standing. How the contagion is transmitted is not known, but it appears to require peculiar conditions. The presence of marked changes in the interacinous spaces of the salivary glands leads to the assumption that the saliva plays a rather important part as a vehicle of the contagion. Mr. Etienne Bernard recalled a case of acute edema of the lung, which he observed, together with Mr. Bezançon, in a case of encephalitic parkinsonism of long standing, in which there appeared to be a new attack of encephalitis at the site of the bulb. The anatomic studies in this case pointed in this direction. Mr. Comby cited a case of late familial contagion traceable to a patient with parkinsonism.

The Difficulties of Public Health Work

One of the obstacles to an efficient organization of public health work in France, where the depopulation is due to the excessive mortality, lies in the law, which gives too much power to the municipal councils. The members of these councils, who are elected by the voters, regard it their principal duty to see that the taxes are not increased. In most of the rural communes, the members of the councils refuse to entertain any suggestions that might compromise their reelection. Hence, they are absolutely indifferent to the hygienic conditions, and are not willing to consider plans for the improvement of the water supply or for the creation of dispensaries.

BERLIN

(From Our Regular Correspondent)

Feb 6, 1933

The Gas Menace in Hospitals

In the Charite Hospital in Berlin, some 200,000 roentgen films are stored. The surroundings are as nearly fireproof as human ingenuity can make them, but if a fire should break out, one must be prepared to combat a possible menace of gas. In an address on "Gas- und Luftschutz," Dr. Kuhnert, the superintendent of the Charite Hospital, called attention to this menace. He had invited a number of experts to hear a report on the subject of protection against poisonous gases, presented by the hygienist Stabsarzt Dr. Otto Muntsch. Muntsch is the author of a well known work on diseases caused by war gases. His address included tabulations, statistics, preparation and demonstrations of gas protection apparatus. The hospital, he stated, is the place to try out apparatus for gas protection. In view of the recent phosgene catastrophe in Hamburg, and the more recent disorders caused by poisonous gases in Belgium, gas protection has become more important. Muntsch described the symptoms of poisoning by the various gases, as well as the means of defense. The people must be instructed as to the effects of poisonous gases, in order that they may adopt prophylactic measures. The hospitals should not only provide suitable apparatus for treatment of gassed persons but also introduce special courses for the training of physicians in

the care of these patients. To protect patients in hospitals, measures must be adopted against dangers arising from gas attacks and conflagrations. The prophylaxis will vary with the location of the buildings and the type of construction. The gas protection crews, provided with masks and resuscitation apparatus, must be trained so that, if suddenly needed, they will be able to transport patients to safety. There were many pessimistic enough to assert that prophylactic measures would be of no aid.

Multiple Sclerosis and Heredity

One of the younger investigators in the field of heredity, the internist Curtius at the University of Heidelberg, has published the results of his research on multiple sclerosis in relation to heredity. He studied the families of 106 multiple sclerosis patients. More than 52 per cent of the living persons were examined in person, and nearly 90 per cent of the relatives could be studied exhaustively. His statistics consisted of an unselected collection of material and computation of the corrected percentages in accordance with the Rüdin-Weinberg-Luxenburger method. A comparison of his statistics was made with similar values in the average population and also with the "average population" of Luxenburger and Schulz. The comparative values in the multiple sclerosis families and the average population according to Luxenburger, for schizophrenia, were 1.27 and 0.90, for manic-depressive insanity, 1.22 and 0.30, obscure psychoses, 1.44 and 0.80, dementia paralytica, 0.99 and 1.24, cerebrospinal syphilis, 0.22 and 0.28, epilepsy, 1.10 and 0.18, senile dementia, 4.32 and 0.54, dementia arteriosclerotica, 2.93 and 0.35. On the whole, the frequency of disorders of the nervous system in the multiple sclerosis relatives was from two to three times as great as in the normal population. The degree of consanguinity ran parallel with the intensity of the hereditary taint. The taint in the multiple sclerosis families consists essentially of such hereditary anomalies as epilepsy, weak-mindedness, hereditary tremor, hereditary hardness of hearing and hereditary nystagmus. Hereditary predisposition plays an important part in the genesis of multiple sclerosis—with which is associated possibly an exogenic factor, or causative agent. Further scrutiny of the results of this research by comparison with other similar material is needed.

Financial Condition of the Sick Benefit Associations

A question much discussed is whether the increase in the number of members of the sick benefit associations who are unable to pay their dues will lead to serious difficulties affecting the financial situation of these associations. Mr. F. Okrass, a director of the chief league of German sick benefit associations, has made a public statement to the effect that he does not share the pessimistic views commonly heard, even though conditions have made necessary certain restrictive measures. At the end of the first quarter of 1932, the total receipts from membership dues showed a deficit, as against the expenditures, of 0.85 marks (21 cents) per member, but the total receipts exceeded the expenditures by 0.65 marks (16 cents) per member. Expressed in percentages of the total expenditures, medical treatment for the first quarter of 1932 required 20.0 per cent as compared with 17.6 in the first quarter of 1931, medicines and other remedies required 11.1 per cent as against 10.5 per cent, hospital care, 14.2 per cent as against 12.9 per cent, and sick benefits, 27.1 per cent as compared with 33.3 per cent. At the end of 1930, the funds held by the Ortskrankenkassen (local associations) amounted to 39.93 marks (\$9.50) per insured member, the Landkrankenkassen (provincial associations), 18.05 marks (\$4.29), the Betriebskrankenkassen (industrial associations), 65.69 marks (\$15.63), the Innungs-krankenkassen (guild associations), 40.93 marks (\$9.74), and the Knappschafts-krankenkassen (miners' associations), 143.59

marks (\$34.17). Owing to the type of the invested funds, the assets of the sick benefit associations represent, however, in reality a much lower sum than the book values.

Physicians in the Service of Municipalities

There are many physicians in Germany who are engaged by municipalities and various organizations. Their compensation is not large but usually suffices to cover their most necessary expenditures. This class is beginning to feel the pressure of the economic situation. After the deliberations of the hospital physicians with the employers' leagues of Germany had failed, the government-appointed arbitrator of the two parties called a meeting for January 18 to reach an understanding. The representatives of the assistant physicians were ready to make concessions, but the attempt to effect a compromise failed owing to the endeavor of the employing organizations to introduce a different method of payment. These organizations insisted on the introduction of a cash payment in addition to maintenance, in order to be able to compensate the nurses in the same manner. The assistant physicians, however, held that the mode of payment that has been in general use (classification in the group compensated in the manner provided for university men) is correct and that it has proved its value in recent years. As the contending parties could not reach an agreement, the arbitrator Professor Brahn declared the deliberations closed.

ITALY

(From Our Regular Correspondent)

Jan 15, 1933

Sanitary Conditions in Italy

The incidence of infectious diseases in Italy has shown an improvement in recent years. The number of cases of smallpox and varioloid, which in 1921 was 4,644, dropped in 1929 to 6 and in 1930 and 1931 to 0. The decrease is doubtless due to vaccination against smallpox, and revaccination at the age of 8, which have been made compulsory.

In 1921 there were 35,527 cases of typhoid and paratyphoid infections, after which there was a steady decline to 24,682 cases in 1931.

Tropical diseases have been virtually eradicated. Of exanthematic typhus there were only a few outbreaks in 1921, 1926, 1927 and 1928. No cases of cholera were observed during the decade. Small outbreaks of plague occurred in 1921 and 1922. There have been no cases since 1927.

Sanitary legislation has been developed and includes compulsory notification for a greater number of infectious diseases, compulsory antityphoid vaccination for certain groups particularly exposed to contagion, and antidiphtheritic vaccination with the Ramon anatoxin. In the chief city of every province, a laboratory of hygiene and prophylaxis has been established. A control of serums, vaccines and arsphenamines has been provided. The regulations pertaining to the supervision of milk and the compulsory crusade against flies have been revised.

Congress of Neurology

The Società italiana di neurologia held recently its ninth national congress in Modena. The single topic on the program was "Present-Day Conceptions of the Physiopathology of the Extrapyramidal System." The official speaker was Professor De Lisi, director of the Clinica neurologica of the University of Cagliari. He emphasized that an extensive revision of the theories pertaining to this subject was needed. For example, there has been advanced the conception that the fundamental function of the extrapyramidal system is postural tonus. Adequate demonstrations of the mechanism of this function have not been given. The interpretation of pathologic movements has thus far been dominated by the theory of localization and many attempted solutions are now recognized as false or at least too categorical. Chorea, regarded as of striatal origin,

is attributed rather to anomalous cerebellar stimuli applied to the sensomotor cortex.

The problem of hyperkinesia requires for its explanation knowledge not yet acquired of the essential nature of nervous energy.

In studying the function of the extrapyramidal system, as regards the coordination of postural activity and myostatic innervation, the action of the cerebellum must be considered. The study of extrapyramidal changes in psychosis and of psychopathic and neurovegetative manifestations in extrapyramidal diseases has brought out many points of analogy and has confirmed the conception of an intimate correlation between extrapyramidal, neurovegetative and psychic functions. Hence, "extrapyramidal" is not solely an anatomic term but represents a wide physiologic and clinical conception, concerning the precise aspects and limitations of which it would be useful to reach an agreement.

Numerous communications were presented. Lugaro of Turin gave an account of his research on the question of the medullated and amyelnic nerve fibers in the posterior roots. Mazza of Reggio nell'Emilia reported his research tending to refute the tuberculous origin of dementia praecox. Donaggio of Modena explained a new urine test, applicable also to the cerebrospinal fluid.

The congress passed a resolution urging the government to include neurology among the required subjects for the government examination in medicine. Professor Tanzi was chosen as honorary president and Professor Donaggio as active president of the society. Rome was chosen as the place of the next congress.

Professor Bruschettini

The death of Prof. Alessandro Bruschettini, bacteriologist of Genoa, has been announced. He studied rabies and tetanus and was the first to affirm that the toxin of tetanus, just as the virus of rabies, is transmitted from the point of infection to the nerve centers along the nerve paths. He was among the first to advocate vaccino-therapy and he manufactured a plurivalent antipyogenic vaccine. In recent years he occupied himself almost exclusively with problems concerning immunity to tuberculosis.

BUDAPEST

(From Our Regular Correspondent)

Feb 7, 1933

New Rules for Writing Prescriptions

The Ministry of Public Health issued a booklet, compiled by Dr. Joseph Melly, with the title "The Duty of Practitioners Toward the Magistrates," which contains some new rules for the filling of prescriptions. The main paragraphs are as follows: 1. The prescribing of drugs necessitates that prescriptions be signed with the full name of physicians. In urgent cases any plain paper may be used but, as a rule, prescription blanks shall bear the printed full name and address and the telephone number of the physician, particularly in the prescription embodies drugs that are declared in the pharmacopoeia to be poisons. If drugs are ordered which are marked in the pharmacopoeia as + or ++ poisons the physician is obliged to give in writing full directions. It is strictly forbidden to write according to directions' or instruction'. Pharmacists must not deliver poisonous drugs so prescribed. Prescriptions containing poisons designated by two crosses if for the residents of villages where there is a pharmacy, may be prepared and delivered within two days where there is no pharmacy, within four days. Medical prescriptions in which two cross poisons are ordered may be renewed by pharmacists only in case the renewal is ordered by a physician by inserting the word's *repetitur* or *renewitur* and his signature and the new date. If corrosive mercuric chloride is prescribed, the pharmacist has to retain the prescription and register it in his

poison ledger with a serial number. Pharmacists have to retain also all prescriptions that call for excessive dosages. These have to be registered and kept for at least ten years. Patients are entitled to copies of the prescriptions, but the word "copy" has to be displayed on them.

The Bacteriologic Institute

The city of Budapest built a magnificent bacteriologic institute, which attracts visitors from all parts of the world. Recently the institute issued its first report, embracing the work done in 1931. Owing to the small number on the staff, the ever increasing examinations can be done only by indefatigable work on the part of the personnel. The institute examines bacteriologically the city water and has undertaken to make plans for supplying water to the new suburbs of greater Budapest. The bacteriologic examinations of ice justified the campaign started by the chief medical officer against the use of natural ice. On the initiation of the chief medical officer, the institute started the supervision of all dairies of the capital and carried on research on the city's atmosphere.

The overwhelming amount of material to be tested is the result of the compulsory bacteriologic examinations which were recently required. In 1931 the institute made 3,380 tests for diphtheria, 8,141 tests for typhoid and 9,839 Wassermann tests. Besides numerous other tests, the institute produced 6,000 doses of scarlatina streptococcus vaccine and collected measles reconvalescent serum. Two physicians of the establishment made 20,000 protective inoculations against diphtheria on children.

Efforts to Improve Obstetrics

The recent statement of Max Hirsch, professor of obstetrics in Berlin, that there had been no practical achievement in the field of obstetrics in the last thirty years, was significant. Hirsch suggested the remedy that all confinements which from the beginning promise to be abnormal should be terminated by cesarean section. Dr. Burger, assistant to Professor Frigyesi of the first obstetric clinic of Budapest University, reported in the *Orvosi hetilap* his results in the clinic in 117 cesarean sections. He endorses Hirsch's proposal. He believes that the indications for forceps need revision, better results may be achieved if their use is not excessively restricted but the indications are amplified on scientific grounds. Still better results may be achieved if in certain cases, after thorough consideration, cesarean section is decided on earlier than usual.

These conclusions are logical not only because the results in obstetrics are far from ideal but because of the ever growing number of elderly primiparas as a result of the present social and economic conditions. It would be unwise to impose on these the risk of a so-called trial labor as was done before the war. It must not be forgotten that the majority of pregnant women at present are forced to work in their own homes or outside and thus they feel the disadvantages of pregnancy to a greater degree. From a rational point of view this question is of first importance, because, owing to the desperately low birth rate of almost all European countries, it is the supreme duty of physicians to save the life of mother and child.

Influenza in Hungary

The present influenza epidemic has made its appearance in Budapest and in one or two other large cities. The cases are fairly mild. The incidence in Budapest recently was so great that several schools, offices and warehouses had to be closed. Some of the cases resemble acute food poisoning, being associated with vomiting, diarrhea and tenderness in the right iliac fossa. Parts of Hungary, chiefly the lowland, are free of the epidemic. According to late reports, influenza has spread through Rumania to Bulgaria and Greece. Although the number of cases of respiratory disease has been rising in Bucharest, there is as yet little evidence of an outbreak.

VIENNA

(From Our Regular Correspondent)

Jan 15, 1933

The Jewish Population of Vienna

In a publication on the Jewish population of Vienna (numbering 200,000) are figures that permit a comparison with the data on the non-Jewish population (1,600,000). The births among the Jewish population during the four-year period 1928-1931 were 1,362, 1,343, 1,222 and 1,064, respectively, which reveals a constant decrease over this period, the fourth year showing a diminution in the birth rate of nearly 25 per cent. The deaths for the four years were 2,669, 2,710, 2,598 and 1,735. In comparison with the non-Jewish population, whose births declined during the period only 16 per cent, the decline among the Jewish population was almost one half greater. The mortality in the two sections of the population was almost equal, being about 13 per thousand. However, the mortality according to age groups shows marked differences. The mortality of Jewish children under 12 months of age was 67, 55, 37 and 36, respectively, or 25, 2, 15 and 15 per cent of the total general mortality, as compared with a percentage about three times as high among the non-Jews. The deaths among the Jewish population in the 80-90 age group were 197, 223, 196 and 240, respectively. In general, many more women than men attain age 80. The corresponding percentage among the non-Jewish population is below 6 in the 80-90 age groups. The age groups 50-60 showed a higher mortality among the Jews, the deaths constituting about 23 per cent of the total mortality, as compared with 18 to 19 per cent among the non-Jewish population. In both classes of the population, however, the women of these age groups show a greater resistance than the men, whereas in the age groups 30-40, in both classes, the women show a higher mortality than the men. There was no great difference in the causes of death, except that mental disorders were somewhat less frequent among the Jews and disorders of metabolism were more frequent than the average for the whole republic. The increase in the number of deaths from neoplasms and from circulatory disturbances corresponds to the general average, but the increase in leukemic conditions is noticeable. Tuberculosis is comparatively rare among the Jews, only from 6 to 7 per cent of the deaths are due to tuberculosis, as compared with from 10 to 11 per cent in non-Jews. During the past ten years the Jewish population of Vienna has decreased (70 per cent of all Austrian Jews reside in Vienna) by 20,000, or 10 per cent of the total Jewish population, whereas Vienna's general population has declined only 3 per cent. Unless something brings about a radical change, a total annihilation of the Jewish population within sixty years is certain.

Chemically Pure Vitamin C

At the last meeting of the Vienna Biologic Society there was great surprise at the announcement of Prof Dr A. Szent-Gyorgy of Szeged that he had succeeded in isolating vitamin C in a chemically pure crystalline form. Szent-Gyorgy obtained from the suprarenal cortex a substance of crystalline form that he terms "hexuronic" acid, which research has shown is identical with vitamin C secured from plants. By chance, Szent-Gyorgy experimented with the paprika plant, which is so widely used in Hungary. In this plant so much hexuronic acid was found that large quantities could be obtained, which made it possible to establish beyond all doubt its absolute identity with vitamin C. The chemical structure of these two identical substances is $C_6H_8O_6$. There are probably intimate relations between vitamin C and pigment metabolism, which require further explanation. Freckles, naevus pigmentosus, vitiligo and other disturbances of pigmentation can now be studied experimentally to greater advantage. Research to confirm Szent-

Gyorgy's discovery is being carried out in Switzerland. In Vienna and in Germany experiments are being done to determine the relative effects of hexuronic acid and the substance known as vitamin C.

Seventieth Birthday of Professor Pal

Prof Jacob Pal—teacher and physician—is known throughout the medical world. His seventieth birthday gave his numerous friends a welcome opportunity to honor him by the publication of a large memorial volume. Pal's chief research concerns investigations on the respiration, heart and circulation. The term vascular crisis originated with Pal. His publications on the smooth musculature of the blood vessels, hypertension, the relation between the sympathetic nerve and tonus have made his name known afar. He has purposely avoided honors, that he might work the more. Nevertheless, he has been sought out frequently by learned societies and has become the recipient of many distinctions.

The Treatment of Tachycardia

In connection with a graduate course for physicians in the Medizinisches Seminar, Prof L. Braun spoke recently on the treatment of tachycardia, which has become so frequent. One distinguishes "sinus" tachycardia, which arises from the sinoauricular node, and the auriculoventricular type, which is associated with auricular flutter and auricular fibrillation. The former type is found in association with fever, excitement or muscular work but seldom ranges above 120 to 160 beats per minute. It is frequently influenced by the respiration. It usually subsides gradually but may subside suddenly. Flutter tachycardia is increased by work, and as a result of alternating "blocking" and "deblocking" there is an irregular pulse. The treatment of all forms of tachycardia was originally purely symptomatic. It is often possible to stop a paroxysmal auricular or ventricular tachycardia by pressure on the vagus nerve, and also by the Valsalva experiment. Relief is sometimes afforded by cold applications to the precordial region, by injections of pilocarpine or physostigmine, or by intravenous administrations of digitalis or strophanthin. Quinine may be regarded as a specific but must be used cautiously because it has also a paralyzing effect on the heart muscle. Quinine hydrobromide is probably the best remedy, given several times a day in from 0.25 to 0.5 Gm doses (4 to 8 grains). If one desires to use intravenous quinine therapy, the patient must be carefully supervised. Digitalis has a good effect in nonparoxysmal fibrillation and often also in the case of flutter. Many patients with paroxysmal tachycardia are aware of the approach of the attack several hours in advance. In such cases, one can prescribe to advantage quinine prophylactically in rather large doses (0.5 Gm several times a day).

Increase of Infectious Diseases in Austria

During the past two months, a marked increase in the number of new cases of diphtheria, measles and scarlet fever has been noted in all parts of Austria but more particularly in the rural districts. The epidemic, for that is what it amounts to, is distinguished by its relatively mild type, but the reports agree that there is a tendency for recoveries to be incomplete and for the disease to be followed by a protracted period of convalescence. In Vienna and in the other large cities there is usually an increase of morbidity observed in the fall, especially as regards diphtheria, measles shows more commonly a retrogression. Investigations are now being undertaken by the municipal school physicians. Of the infectious diseases, only influenza and sore throat were prevalent to any great extent in adults. The manifestations of sore throat were, however, in many cases severe and were associated with many complications, but the crisis appears to have been passed.

PRAGUE

(From Our Regular Correspondent)

Jan 24, 1933

The Public Health in 1932

In 1932 the continuous decline of the birth rate was accentuated by the economic depression. The final figures for the general death rate, which are not yet available, will probably compare unfavorably with previous years because there were serious epidemics of diphtheria and influenza in the last quarter of the year. No such diphtheria epidemic has occurred in Czechoslovakia since the registration of this disease began in 1890. The epidemic of influenza was as extensive as that of 1927, if not more so. It broke out in December, while the epidemic of 1927 came in February.

The effect of the economic depression on the general nutrition of the population cannot be denied. Nevertheless, on the whole, serious undernutrition has not appeared, mainly because the population employed in large industries did not lose its connection with agriculture. The large industries are in big cities but the working class is recruited from the country, where the family usually remains while the father is employed in the city. The small farms owned by these families enable them to maintain a certain standard of living even though the father may lose his job. The city proletariat has been supported by an unemployment dole paid by the state. The state has also furnished large sums of money for the nutrition of school children of families of the unemployed, and consequently no serious conditions of undernutrition could be found through school medical inspection.

As for medical education, a decrease of medical students was registered at all four medical schools, yet the number of students is still so high that the medical schools cannot provide satisfactory teaching accommodations. The number of medical students showed a decrease mainly because there was a smaller number of foreigners registered. The decrease also in Czechoslovakian medical students resulted from the saturation of Czechoslovakia with medical personnel.

The number of physicians in Czechoslovakia has almost doubled since the World War. There are now almost 12,000 practicing in Czechoslovakia, that is an average of one physician to about 1,200 of population. That the physicians can make a living can be explained only by the development of medical insurance, which, since the World War, has mobilized large sums of money for medical fees, without which the absorption of great numbers of new physicians in practice would have been impossible. But this system is responsible for a dangerous situation at present. Unemployment goes hand in hand with the loss of rights for benefits from social insurance, and consequently the number of prospective patients for insurance physicians has been reduced. If the economic depression and unemployment do not end soon the physicians will feel sharply the drop in their income. This will be true especially of recent graduates.

Medical treatment for the unemployed is a problem, the profession has assumed this task willingly, and special committees on which physicians are serving generally free of charge are being organized all over the country for emergency medical relief for the unemployed.

Public hospitals continue to be in good condition with regard to equipment and finances. Special hospitals have been hit hard by the depression especially tuberculosis sanatoriums, preventoriums and convalescent homes which are chiefly maintained by insurance societies. Most of them suffer from lack of patients.

The famous watering places of Bohemia (Karlsbad, Marienbad, Franzensbad) are undergoing a profound change. These places have been built up mainly by catering to foreigners.

The depression has decreased the number who can afford to live at the spas. Radical changes in the management of the watering places have come about. The fees paid to the physicians have been reduced and living conditions are on a lower standard than in previous years. Living at the watering places of Bohemia is much cheaper than before the depression and as a result they are frequented to a larger extent by the Czechoslovakian population than before. It is estimated that the cost of a sojourn at these spas has been reduced even for foreigners by 50 per cent during the last two years.

In 1932 there were economies in public finances but no material reductions in public health activities. The dispensary service dealing with infant welfare, tuberculosis and venereal diseases did not suffer much reduction. These institutions have been supported from reserves accumulated in the time of prosperity together with a large grant from the Central Invalidity Insurance Agency. The depression has, nevertheless, affected the work in these institutions. The cause is not so much material as psychologic. The personnel realized the uncertainty of their future and the best workers began to look for positions of better stability and tenure. Psychologic uneasiness of the personnel led undoubtedly to a certain stagnation.

Czechoslovakia has survived the past year, the most difficult one in its history, without any serious damage to the health of the people.

Leaflets Placed in Periodicals

The State Institute of Public Hygiene of Prague gives out, fifteen times a year, a leaflet describing some new method which the institute is using in public health work. These leaflets are edited by the scientific directors of the institute and represent the opinion of the most qualified persons of the country. They are numbered and issued so that they can be assembled into a volume later on. The institute has a contract with Czechoslovakian medical periodicals to the effect that the leaflets shall be laid in the copies of the periodicals and sent with them to every subscriber. This practice has become popular with the medical profession because physicians find in the leaflets practical information on many topics. The leaflets deal mainly with vaccination against diphtheria, the Calmette vaccine, and the use of convalescent serum against measles. They contain also information concerning epidemics and vital statistics. These leaflets are educational for the practitioners and they are inexpensive.

Cooperative Studies on Rural Health Problems

The Public Health Service is developing a close collaboration with the health section of the League of Nations. The cooperative activities concern chiefly the province of Slovakia which is quite backward, as compared with the western part of the state, in developing sanitation. As the country is agricultural, rural problems are in the forefront. The program is mainly educational. The main assistance rendered by the League of Nations is placing at the disposal of Czechoslovakia a number of experts who will function through the State Institute of Public Hygiene in Prague. The prominent role will be taken by Dr. Andrej Štampar of Yugoslavia, who has a wide reputation as a result of his work in improving rural hygiene.

The League of Nations is cooperating with Czechoslovakia in certain studies resulting from the conference held in Geneva in 1931. Three such studies are at present being conducted in Czechoslovakia. One of them is concerned with financing public health services in the rural areas, the second deals with typhoid in rural areas. Two rural districts have been selected that are especially fitted for this study. Some interesting facts have been brought out concerning the role of typhoid carriers and the methods for their detection. It appears that water and milk, which are chiefly responsible for the outbreaks of

typhoid in large cities, are not important factors in rural areas, where carriers and flies are the main problems. New light has been thrown on the interpretation of the Widal test among the carriers of typhoid. The third study concerns the sanitation of milk and its role in the nutrition of the rural population. It is apparent that the small farmers give much more care to milking and the preservation of milk than the large producers, who become careless and try to get as much profit from their business as possible without considering sanitation. It was found that tuberculosis among cows on small farms was only about half of that on large farms. Control over the large producers has become difficult because the milk market is not well organized. Milk is being sent long distances to cities. The cooperative studies being carried out simultaneously in Hungary, Poland, Czechoslovakia, Spain and parts of France will be used as material for the second rural hygiene conference, which is being prepared by the health section of the League of Nations.

THE NETHERLANDS

(From Our Regular Correspondent)

Jan 17, 1933

Rat Plague on Ships at Amsterdam

Mr A. Vedder publishes in the *Nederlandsch tijdschrift voor geneeskunde* a study on plague. Between 1910 and 1930, plague-infected rats were found eight times on ships in the port of Amsterdam, the last discovery being in 1920. In 1932, renewed manifestations of rat plague developed on a ship coming from the Plata River. The author, who examined the rats sent to the university laboratory, emphasized the resemblance of the plague bacillus to the bacillus of pseudotuberculosis rodentium. The two have the same morphologic characteristics, the same typical forms of colonies, and the same biochemical reactions, and in inoculations into the guinea-pig only the Otten test made differentiation possible.

Like *Bacillus pseudotuberculosis-rodentium*, the plague bacillus presents three different types of colonies. In the former there is an evident relation between the degree of virulence and the form of the colonies. The same is probably true of the plague bacillus. The virulent type (type D) is not found among the strains of plague bacillus discovered in the Netherlands, including the type isolated in the case of the ship mentioned. This no doubt explains why, in the beginning of the tests, the guinea-pigs appeared so slightly susceptible to plague infection.

Decline in Tuberculosis Mortality

In 1931 the mortality from tuberculosis had dropped in the Netherlands to 7.31 per hundred thousand inhabitants. The notification of tuberculosis is not compulsory in this country, but the highly developed system of dispensaries and of visiting nurses makes it possible to exercise close supervision over the population. Between 1921 and 1930 the mortality decreased by 50 per cent in cities of more than 100,000 inhabitants and by 35 per cent in the communes of less than 5,000 inhabitants. In females, the mortality is notably higher in the rural districts than in the cities. The reasons assigned are that poor hygienic conditions have a greater influence on the life of women than on men, and that pregnancies are more frequent in the rural districts than in the cities. These observations will tend to intensify the effort to reduce the morbidity from tuberculosis in the rural sections to a percentage at least as low as that in the cities.

Report of the Encephalitis Commission

The council on hygiene has just published a report on post-vaccinal encephalitis that brings the whole question up to date. As to the nature of the relation between vaccination and encephalitis, "the most plausible assumption is that a latent encephalitogenic virus may become active under the influence

of vaccination, or that some organism already present becomes virulent as the result of the lowered resistance of the vaccinated person."

Mutual Sick Benefit Associations in the Netherlands

Dr J. A. Berger, in a comprehensive article on mutual sick benefit associations in the Netherlands, gives an outline of the history of medical service up to 1892 and 1908 and then devotes several chapters to questions that have been in the forefront since 1908. One gets from the book an impression that the physicians have done all that they could to improve the mutual sick benefit associations. In chapter III, the question of providing medical care for patients by some form of insurance is discussed. In chapter IV, the author gives an account of the struggle for leadership in the mutual associations. He discusses also the decree of 1912 and the reaction produced throughout the country. He considers the question of the free choice of physicians. He would prefer not to see the free choice of physicians upheld in the law pertaining to mutual sick benefit associations. The author gives his opinion on the province of the mutual association and on government inspection.

International Society of Medical Hydrology

At the congress of the International Society of Medical Hydrology, held recently in Amsterdam, Dr Van Breemen spoke on physical therapy. In the Netherlands, no course of instruction in physical therapy, balneology or climatotherapy is given at any university. He said that physical therapy is not accorded the practical and scientific importance that it deserves. The congress held a joint session with the medical society for combating rheumatism. The topics discussed were "Cold as a Cause of Disease" and "The Role of Seaside Treatment." Dr Carl Habermann pointed out the functional changes brought about by a visit to the seaside. Muscular strength and respiratory capacity are increased, the percentage of hemoglobin in the blood rises, the metabolism, the oxygen intake and the retention of calcium and phosphorus are all increased. Dr Gorter recounted his experimental research on the influence of a stay at the seaside.

Withdrawal Treatment for Opium Addicts

Dr F. J. H. Noordhock Hegt presented a paper on the Modinos withdrawal treatment as applied to opium smokers. This method consists in venesection done several times and injection of the blood serum subcutaneously, with gradual diminution, at the same time, of the dose of opium. When the patient has been without opium for several days, he is subjected to the smoking test. This is regarded as positive when, after having smoked a pipe of opium, the patient is seized with vomiting, a cough due to irritation, and other symptoms. The author gave some personal observations with regard to this reaction. The better results secured by Kwa and Tan, who also employed this method, may be attributed to the closer contact that they had with the patients rather than to their better application of the method itself.

Types of Pneumococcus in the Dutch East Indies

Dr Kirchmer has an article in the *Geneeskundig tijdschrift voor Nederlandsch-Indië*, in which he gives an account of his research on the types of pneumococcus occurring in the Dutch East Indies. He found that about two thirds of all cases are caused by types I and II (42 per cent, type I, 25 per cent, type II). The remaining cases are caused by type IV. He did not find type III in pneumonia cases, but he found it in a few patients with fever without pneumonia. The author observed that pneumonia with types I and II is generally more grave than pneumonia with type IV. A number of coolies were vaccinated with a polyvalent pneumococcal vaccine. The results were encouraging but did not justify any definitive conclusion as to the value of the method.

Marriages

- CLINTON E MERSHON, Adel, Iowa, to Miss Constance Vivian Hull of Berwyn, Ill., in Rosendale, Wis., Dec 24, 1932
- LLFWELLYN W LORD to Mrs Margaret Ward Jones, both of Baltimore, at Greenwich, Conn., January 28
- JAMES L GALLAGHER, Buffalo, to Miss Marie Veronica Butler at Balboa Heights, C Z, February 21
- WILLARD M MEININGER, San Francisco, to Miss Theresa Mae Ruder of Kulm, N D, January 20
- HAROLD E MILLER, New Smyrna, Fla., to Miss Margaret Easterling of Savannah, Ga., February 9
- NOBLE MURRAY EBERHART, Chicago, to Mrs Florence Ingram of Westmont, Ill., February 7
- DAVID LEMUEL HARRELL, JR., Suffolk, Va., to Miss Katie Mae Moore of Lynchburg, January 9
- PETER P DOERING to Miss Marjorie Dorothy Sandquist, both of Geneseo, Ill., February 10
- RAYMOND HASBROUCK SHRADY to Miss Janet Seed, both of New York, February 18
- OLIVER E VAN ALYEA, Chicago, to Miss Elizabeth Cameron of Milwaukee, February 11

Deaths

- Walter Ellis Sistrunk, Jr. ☉ Dallas Texas, Medical Department of Tulane University of Louisiana, New Orleans, 1906, member of the American Surgical Association, Southern Surgical Association and the Society of Clinical Surgery, fellow of the American College of Surgeons, formerly professor of clinical surgery, Baylor University College of Medicine, in 1911 entered the Mayo Clinic, Rochester, Minn., as an assistant in pathology, in 1912 was appointed first assistant in surgery, in 1914 assistant surgeon, and in 1916 attending surgeon and head of a section of general surgery, at one time associate professor of surgery of the University of Minnesota Graduate School of Medicine, Rochester, Minn., assistant professor of operative gynecology of the cadaver, New Orleans Polyclinic, 1906-1909, surgeon to the Parkland Hospital, aged 52, was found dead, March 6, of poison, in a hotel at New Orleans
- George David Stewart ☉ New York, Bellevue Hospital Medical College, New York 1889 member of the House of Delegates of the American Medical Association in 1919, professor of surgery, University and Bellevue Hospital Medical College, member of the American Surgical Association and the Associated Anesthetists of the United States and Canada fellow and past president of the American College of Surgeons past president of the New York Academy of Medicine, formerly member of the State Board of Social Welfare president of the medical board and visiting surgeon to St Vincent's Hospital consulting surgeon to the Englewood (N J) Hospital, St Mary's Hospital Orange, N J, United Hospital Port Chester South Side Hospital Bayshore St Joseph's Hospital, Yonkers, and the Bellevue Hospital, New York, aged 70, died March 9, of uremia
- David Bushrod James, Philadelphia Hahnemann Medical College and Hospital of Philadelphia, 1896, assistant in pathology and histology in 1898 demonstrator of gynecology pathology and microscopy 1899 associate professor of gynecology in 1905 and since 1910 professor and head of the department of gynecology at his alma mater fellow of the American College of Surgeons gynecologist in charge of the Hahnemann Dispensary consulting gynecologist to the Allentown (Pa) State Hospital and the William McKinley Memorial Hospital Trenton N J aged 58, died, January 19, of pulmonary edema and heart disease
- Franklin Edward Murphy ☉ Kansas City Mo University of Pennsylvania School of Medicine Philadelphia 1893 professor of clinical medicine University of Kansas School of Medicine fellow of the American College of Physicians formerly member of the state board of health, past president of the Jackson County Medical Society on the staffs of the Bell Memorial Research, Wesley and General hospitals, aged 61, died February 20 of heart disease
- Albert Draper Whiting ☉ Philadelphia University of Pennsylvania School of Medicine Philadelphia 1892 associate professor of surgery Graduate School of Medicine of

the University of Pennsylvania, aged 63, on the staffs of the Southern Home for Destitute Children and Home for the Instruction of the Deaf, and the Lankenau Hospital, where he died, February 17, of sarcoma of the right shoulder

Christian Frederick Pfingsten ☉ St Louis, St Louis College of Physicians and Surgeons, 1898, associate professor of otolaryngology, St Louis University School of Medicine, member of the American Academy of Ophthalmology and Otolaryngology, fellow of the American College of Surgeons, otolaryngologist to St John's Hospital, aged 57, died, Nov 20 1932, of chronic myocarditis

Howard Pursell, Bristol, Pa Medical Department of the University of the City of New York, 1867, member of the Medical Society of the State of Pennsylvania, also a druggist, past president of the Bucks County Medical Society, Civil War veteran, for twenty years president of the board of health of Bristol, aged 85, died, January 13, of heart disease

Isaac Jarrett Jones, Little Rock, Ark, Arkansas Industrial University Medical Department, Little Rock, 1889, formerly professor of bacteriology, University of Arkansas School of Medicine, served during the World War, aged 68, died, Dec 28, 1932, in the Baptist State Hospital, of burns received when his clothing caught fire from an open gas grate

William Loomis Griswold ☉ Greenwich, Conn, College of Physicians and Surgeons in the City of New York, Medical Department of Columbia College, New York, 1885, member of the board of education, formerly health officer, at one time on the staff of the Greenwich Hospital, aged 72, died, February 24, of carcinoma of the sigmoid

Frederick C Gessner ☉ Milwaukee, Wisconsin College of Physicians and Surgeons, Milwaukee, 1901, on the staff of the Oconomowoc (Wis) Health Resort, aged 61, died suddenly, February 11, in Rochester, Minn., of bronchopneumonia, following an operation for carcinoma of the stomach

Edward Quarles, Island Creek, Md, University of Maryland School of Medicine, Baltimore, 1899, member of the Medical and Chirurgical Faculty of Maryland, on the staff of the Calvert County Hospital, Prince Frederick, aged 55, was killed, Nov 1, 1932, when struck by an automobile

Harry Kirke Read ☉ Houston Texas, University of Minnesota Medical School, Minneapolis, 1899, past president of the Texas Public Health Association, supervisor of hygiene in the city schools of Houston, for four years member of the school board, aged 68, died, Dec 8, 1932, of uremia

William Luther Hartsell ☉ Warren, Ark, Dallas (Texas) Medical College, 1903, formerly secretary of the Bradley County Medical Society, aged 60, died, February 4, in a hospital at Little Rock, of empyema of the gallbladder, acute appendicitis, myocarditis and pulmonary edema

Rhodolphus H Rice ☉ Milwaukee, College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1897, member of the American Academy of Ophthalmology and Oto-Laryngology, aged 63, died, February 8, following an operation for mastoiditis

Michael John Dillon, Jr. ☉ Springfield, Mass, Baltimore Medical College 1908 member of the board of health, fellow of the American College of Surgeons, on the staffs of the Health Department Hospital and the Mercy Hospital, aged 49 died, February 11, of angina pectoris

Sam Houston Adams, Slaton, Texas, University of Louisville (Ky) School of Medicine, 1909, member of the State Medical Association of Texas aged 57, died recently in a local hospital of wounds received when he was shot by the father of a patient

James Franklin Blair ☉ Bozeman, Mont, University of Vermont College of Medicine Burlington, 1892 fellow of the American College of Surgeons, on the staff of the Bozeman Deaconess Hospital, aged 64, died, February 6, of cerebral hemorrhage

Michael Henry Cleary, Galena, Ill Pulte Medical College Homeopathic Cincinnati, 1878, also a lawyer, formerly member of the state legislature member of the board of education aged 79 died February 2, of carcinoma of the stomach

Neldon Mason Weigle, St Louis, State University of Iowa College of Medicine Iowa City, 1932 intern at St Louis City Hospital aged 25 died January 7 of acute glomerular nephritis acute maxillary sinusitis and otitis media

Robert Frederick Hutcheson, Cedarhurst N Y, Bellevue Hospital Medical College New York 1893 member of the Medical Society of the State of New York for many years health officer of Cedarhurst aged 61, died February 18

Henry Clay Beckett, Chase City Va Vanderbilt University School of Medicine Nashville Tenn, 1884, University

of Nashville (Tenn.) Medical Department, 1885, member of the Medical Society of Virginia, aged 81, died, January 11

Daniel Francis Sullivan, West Hartford, Conn., Niagara University Medical Department, 1891, formerly member of the board of health of Hartford, for many years on the staff of St. Francis Hospital, Hartford, aged 65, died, February 5

Lyman Ross Orton, Wilmington, Mass., Boston University School of Medicine, 1927, member of the Massachusetts Medical Society, school physician and agent of the board of health, aged 33, died, January 13, of heart disease

Clarence Jennings Miner, Brooklyn, University of Minnesota Medical School, Minneapolis, 1891, served during the World War, aged 68, died, February 20, in St. Luke's Hospital, New York, of carcinoma of the stomach

John Joseph Ryle, Stamford, Conn., University of Buffalo (N. Y.) School of Medicine, 1897, chairman of the board of education, formerly health officer, aged 60, died, February 15, in the Stamford Hospital, of heart disease

Frank Harten Pratten, London, Ont., Canada, University of Toronto Faculty of Medicine, 1912, fellow of the American College of Physicians, superintendent of the Queen Alexandra Sanatorium, aged 46, died, Dec. 10, 1932

Mark Spaulding Bradley, Hartford, Conn., College of Physicians and Surgeons in the City of New York, Medical Department of Columbia University, New York, 1892, aged 65, died, February 5, of heart disease

Alexander Leon Brown, Chicago, University of Illinois College of Medicine, Chicago, 1930, aged 26, died, February 22, of acute cholecystitis with stones in the common duct and postoperative intestinal obstruction

James Wattie Fennell, Mount Hope, Ala., Birmingham Medical College, 1901, member of the Medical Association of the State of Alabama, aged 58, died, February 17, of chronic nephritis and myocarditis

Charles Sylvester Bentley, Plattsburg, N. Y., Columbia University College of Physicians and Surgeons, New York, 1896, veteran of the Spanish-American War, aged 61, died, January 29, of lymphoblastoma

James Edward Pennington, Esom Hill, Ga., University of Georgia Medical Department, Augusta, 1888, member of the Medical Association of Georgia, aged 73, died, February 13, in a hospital at Cedartown

Carroll C. Conant, Weiser, Idaho, Detroit College of Medicine, 1907, served during the World War, aged 46, died, February 17, in the Letterman General Hospital, San Francisco, of pulmonary edema

William H. Craig, Upland, Calif., College of Physicians and Surgeons, Baltimore, 1886, member of the California Medical Association, aged 73, died, January 9, in Ontario, of cerebral hemorrhage

William John Scanlan, Shenandoah, Pa., Medico-Chirurgical College of Philadelphia, 1899, president of the Schuylkill County Medical Society, aged 63, died, February 3, of coronary thrombosis

Ernest Albert LeBien, McHenry, N. D., Washington University School of Medicine, St. Louis, 1904, county health officer, aged 55, died, February 5, in a hospital at Valley City, of pneumonia

Fred Albert Keppler, Dubuque, Iowa, Marquette University School of Medicine, Milwaukee, 1929, member of the Iowa State Medical Society, aged 30, died, February 2, of a ruptured appendix

Arthur Edmund Clendenan, Edmonton, Alta., Canada, University of Toronto Faculty of Medicine, 1891, first deputy minister of health of Alberta, aged 64, died, January 24, of pneumonia

Clifford C. Leck, Austin, Minn., Homeopathic Medical Department of the University of Minnesota, Minneapolis, 1900, aged 59, died, January 26, at Excelsior Springs, Mo., of angina pectoris

George K. Beyer, Lorain, Ohio, Cleveland Medical College, Homeopathic, 1897, member of the Ohio State Medical Association, aged 67, was found dead, February 20, of heart disease

Robert C. Schroeder, St. Louis, Missouri Medical College St. Louis, 1884, for twenty years chief pharmacist at St. Luke's Hospital, aged 73, died, January 31, of pneumonia

George Harlan Johnson, Quanah, Texas (licensed, in Texas by the State Board of Medical Examiners, under the Act of 1907), Civil War Veteran, aged 89, died, January 26

Charles E. Thomson, Scranton, Pa., Bellevue Hospital Medical College, New York, 1891, medical superintendent of the Scranton Private Hospital, aged 73, died, February 13

Joseph Andrew Parks, San Diego, Calif., Vanderbilt University School of Medicine, Nashville, Tenn., 1898, aged 60, died, February 8, in La Mesa, of cerebral embolism

DuGrand D. Erway, Syracuse, N. Y., Syracuse University College of Medicine, 1883, aged 77, died, February 19, of carcinoma of the mesentery and chronic myocarditis

Benjamin Franklin Scholl, Philadelphia, Jefferson Medical College of Philadelphia, 1886, aged 72, died suddenly, January 31, of cerebral hemorrhage and arteriosclerosis

Merritt Wright Barnum, Ossining, N. Y., University of Jena, Germany, 1891, on the staff of the Ossining Hospital, aged 65, died suddenly, February 24, of heart disease

Charles H. L. Souder, Rockwell City, Iowa, Kentucky School of Medicine, Louisville, 1881, Chicago Homeopathic Medical College, 1894, aged 79, died, February 10

Charles Mason Smith, Fredericksburg, Va., University of Virginia Department of Medicine, Charlottesville, 1907, aged 50, died, January 2, of a gunshot wound

Ferdinand Mitchell Perrow, Lynchburg, Va., University of Pennsylvania School of Medicine, Philadelphia, 1905, aged 58, died, January 20, of chronic nephritis

Henry Esta Whitacre, Tularosa, N. M., St. Louis College of Physicians and Surgeons, 1909, county health officer, aged 46, died, Dec. 12, 1932, of nephritis

John Edwin Mahoney, Enid, Okla., Jefferson Medical College of Philadelphia, 1906, aged 53, died, February 7, in a local hospital, of cerebral hemorrhage

David Chambers Peters, Zanesville, Ohio, Medical College of Ohio, Cincinnati, 1866, aged 90, died, Dec. 28, 1932, in the Bethesda Hospital, of pneumonia

Cornelius J. Mahoney, Providence, R. I., Harvard University Medical School, Boston, 1898, aged 57, died, January 3, of cerebral thrombosis and hemiplegia

Accie Ely Mathews, Franklin, Ind., Woman's Medical School of Northwestern University, Chicago, 1893, aged 71, died, February 12, of heart disease

Joseph Charles Gandier, Clinton, Ont., Canada, University of Toronto Faculty of Medicine, 1909, aged 51, died suddenly, January 21, of heart disease

John Smidt Preissler, Camp Taylor, Ky., Louisville Medical College, 1873, Hospital College of Medicine, Louisville, 1875, aged 81, died, February 8

Henry H. Sutherland, Los Angeles, State University of Iowa College of Medicine, Iowa City, 1885, aged 79, died, January 16, of mitral insufficiency

John Wesley Turner, Catlin, Ill., Willamette University Medical Department, Salem, 1872, aged 93, died, Dec. 18, 1932, of basal cell carcinoma

Milton Granville Sloan, Indianola, Iowa, Rush Medical College, Chicago, 1873, aged 84, died, Dec. 28, 1932, of influenza and bronchopneumonia

James W. Pruett, Weogufka, Ala., Medical College of Alabama, Mobile, 1892, aged 65, died, January 31, of carcinoma of the pancreas

Samuel Perley Strickland, Waltham, Mass., Dartmouth Medical School, Hanover, N. H., 1891, aged 62, died, January 15, of septicemia

Charles L. Bellamy, Cranfills Gap, Texas, Atlanta Medical College, 1895, aged 58, died, Dec. 4, 1932, of myocarditis and influenza

Frank Albert Pruett, Phoenix, Ariz., Northwestern Medical College, St. Joseph, Mo., 1894, aged 60, died, January 15, of lobar pneumonia

Harry Finkelstein, Boston, Harvard University Medical School, Boston, 1904, aged 52, died, February 2, of coronary thrombosis

James Palmer McGill, Chicago, Homeopathic Hospital College, Cleveland, 1884, aged 76, died, February 9, of pneumonia

Abraham Romm, Omaha, Baltimore University School of Medicine, 1902, aged 58, died suddenly, February 4, of heart disease

S. K. Owens, Montgomery, W. Va., College of Physicians and Surgeons, Baltimore, 1891, aged 66, died, Dec. 3, 1932

Joseph Wagner, Mount Vernon, Ohio (licensed, Ohio, 1896), aged 90, died, Dec. 31, 1932, of carcinoma

Correspondence

ACNE VULGARIS FOLLOWING THE TAKING OF YEAST

To the Editor—Despite the marvelous accounts of the value of yeast, written by the advertising agents of the yeast companies and supported by the foreign legion of physicians, the relative percentage of acne cases among dermatoses has not decreased. In addition, at least half of the patients suffering from acne have previously tried yeast without any benefits to themselves. But that the administration of yeast may actually induce the appearance of acne vulgaris seems to have escaped attention. The report of the following three cases of acne is of some passing interest.

CASE 1—A white man, aged 26, had suffered from a mild acne between the ages of 16 and 20 but had been entirely well for six years. Because of some indigestion he decided to take yeast, and after he had done so for three weeks there was no change in his gastro-intestinal condition and, in addition, there had developed a severe pustular acne vulgaris of the forehead and cheeks, this spontaneously disappeared two weeks after the yeast was discontinued and has not recurred for three years.

CASE 2—A white youth, aged 21, twice developed an acne vulgaris within three weeks after the administration of yeast was begun. The condition continued with increasing severity during the taking of the preparation and disappeared spontaneously within two weeks of the time that the yeast was discontinued.

CASE 3—This was in all particulars the same as in the second case reported, except that the patient was a girl.

In all three of these cases the patients were well known to me and the observations noted are correct.

H. H. HAZEN, M.D., Washington, D. C.

CAPILLARY CHANGES IN PERNICIOUS ANEMIA

To the Editor—In a typical, well defined case of pernicious anemia, one sees at a glance the oversized erythrocytes, which are present even during remissions of the disease. During a relapse, in addition, megaloblasts are perceived. Pinoy believes that these large cells are representatives of certain intravascular cells of the embryonal liver persisting in this disease to adult life. Parenthetically, some children exhibit achylia, attributed by some observers to toxemias following infectious diseases. I believe that macrocytes should be looked for in these conditions. If Pinoy is right, pernicious anemia is present from intra-uterine life until middle age without symptoms. These large cells have a diameter of 15 to 18 microns. According to Gray, the usual diameter of the capillaries is 8 microns. They are smallest in the brain and intestine and largest in the bones and skin. 20 microns. It has been noted that improvement is last manifested in the peripheral circulation. Is there a short circuit between the bone marrow and skin where the big cells following the law of least resistance because they cannot enter the small capillaries, crowd the peripheral circulation and lead one to have an erroneous idea of the blood picture as a whole? As to the hemolysis there is an increase in the fragility of the cells. True they are elastic and so are the capillaries. This elasticity decreases about the time the pernicious anemia develops and it is quite conceivable that the attrition caused by the disparity between the size of the cell and the caliber of the capillaries, together with the added fragility of the cell wall may cause it to rupture with escape of the hemoglobin into the plasma. I am aware that the hemolysis has been attributed to an increase in the permeability of the cell wall. This would simply show that the increased tension due to the disparity caused the contents to be extruded

and rendered more vulnerable the cell wall. Have any studies been made of the caliber of capillaries in pernicious anemia? Perhaps if the macrocytic erythrocytes are present from birth the capillaries would possibly enlarge to accommodate them.

THOMAS I. O'DRAIN, M.D., Philadelphia

STREPTOTRICHOSIS

To the Editor—In THE JOURNAL, January 28, is a communication from Dr. Robert N. Nye of Boston in which he takes certain exceptions to the article on streptotrichosis by Dr. Mezei and myself (THE JOURNAL, Dec. 10, 1932). Some of his criticisms are well founded, others are characteristic of the recent confusion on the subject. His first contention, that fungi are widely distributed in nature and are often harmless saprophytes, no one will deny. This is true also of some of the higher bacteria. That the medical literature abounds with reports of cases of diseases in which the alleged primary etiologic factor is in many instances probably a harmless saprophyte and in others a secondary invader is hardly to the point in his discussion of our case. His comment that "the case is most interesting and its report certainly warranted" and our own close study of the clinical course of the disease picture acquit us of any suspicion along these lines.

Our study of the literature, on the lack of which Dr. Nye chides us, has convinced us that there is a symptom complex which deserves clinical recognition and which appears to be produced by a definite and specific etiologic factor, of which our case seems to be a classic example. This disease entity of late years has been called, chiefly by the clinicians, by the single generic term streptotrichosis (or streptothricosis), and common usage has seemed to stamp this as the correct nomenclature. A study of the literature as regards the botanic classification and bacteriologic characteristics, however, does not disclose the same unanimity of opinion. To cite Dr. Nye's own authority on the subject, Castellani (*Arch. Dermat. & Syph.* 16:383 [Oct.] 1927) states:

Until recently all the species of this order (*Nocardia* Toni and Trevisan, 1889) were considered to belong to one genus, i. e., *Nocardia* Toni and Trevisan, 1889 but Pinoy has made a subdivision separating certain species into another genus which he calls *Cohnistrepthothrix* Pinoy, 1911. In doing this he points out that the original discoverers of actinomycosis, namely Harz and Bollinger in 1877 and Rivolta in 1878 thought that they were dealing with one organism but when they attempted to make cultures, it became apparent that more than one organism was implicated. Thus Bostrom isolated a parasite which grew well aerobically produced a dry membrane on the surface of broth and was capable of growth at 20 C. on gelatin but which grew better on potato at 37 C. and formed chains of arthrospores.

Wolf and Israel on the other hand obtained a parasite which grew only anaerobically and was not capable of growth at ordinary European air temperature. In broth it formed small granules or scales which fell to the bottom of the tube. These cultures often contained clublike forms and the branching filaments broke up into bacillar or coccilike forms. Inoculation of gelatin cultures into the peritoneal cavity of guinea pigs produces actinomycosis. This form is commonly called *Nocardia israeli* (Kruse, 1896). Wright maintains that this organism is the true cause of actinomycosis and that *Nocardia bovis* is merely a contamination, but this is not generally accepted.

There are however two distinct organisms which can cause actinomycosis in man and oxen, viz. *Nocardia bovis* (Harz, 1877) and *Nocardia israeli* (Kruse, 1896), but the difference between them is considerable and therefore Pinoy has separated the latter and its allies from the former and has founded the new genus *Cohnistrepthothrix* Pinoy, 1911.

In a clinical discussion of fungal diseases the same author in the January, 1928 issue of the *Archives* says: "Bronchocardioidiasis is the modern term used to denote all bronchial and bronchopulmonary conditions due to fungi of the genus *Nocardia* Toni and Trevisan, and the genus *Cohnistrepthothrix* Pinoy which were previously more commonly known as *Streptothrix*, *Actinomycosis*, *Discomyces* and *Oospora*." He divides the condition into two groups, one containing fungal granules in the sputum, the actinomycosis bronchialis or pulmonalis, and the other producing no fungal granules, the pseudoactinomycosis. He also cites several cases of bronchopulmonary streptotrichosis with the production of yeastlike bodies in the sputum.

Far be it from us to clarify all these confusing statements, on which the best authorities are not in agreement. We certainly do not deny that actinomycosis is a distinct entity and is produced by a specific infectious agent that exists in the lesions and in the pus in the form of small whitish or yellowish granules the essential element of which is a branching filamentous organism. Between this distinct entity on the one hand, however, and infections due to the hyphomycetes or lower fungi, of which the sporothrix is an example, there is again a definite clinical entity caused by a micro-organism which, briefly, is characterized by branching threadlike forms, which produce fine conidia or sporelike reproductive elements. Because of the many characteristics it has in common with both its higher and its lower neighbors, and because of its ability to accentuate some of these characteristics and depress others, it is doubtless confused with its neighbors and given names resembling them. We therefore again contend that, when a clinical picture such as we have described is encountered, in which the causative organism is established to be a slender branching filament lacking the tubular structures with the double contoured walls, protoplasmic content and transverse septums of the lower hyphomycetes, and yet able to produce sporelike reproductive elements or conidia, the term streptotrichosis be designated. Its other bacteriologic characteristics described in our article, while we believe they are correct, will doubtless be more definitely established after further work along these lines.

MAURICE KOVAT, M.D., Staten Island, N. Y.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

CHRONIC EDEMA OF ANKLES

To the Editor—An underweight girl, aged 12, has had edema of the ankles for two years. This is of the pitting type and is slightly painful. There are no other subjective symptoms, except asthma of three years' duration, for which the patient uses a nasal spray (patented) containing a small quantity of cocaine. Examination shows the heart, liver and kidneys normal. Biopsy and family history are negative for Milroy's disease. The stool contains *Blastocystis hominis*, which is apparently not causing irritation. The case has been considered one of endemic nutritional edema because the patient is not a vigorous eater, however, larger quantities of protein food have made no improvement. No estimate of amount of blood serum albumin has been made. What suggestion have you as to possible cause and treatment? Please omit name.

M.D., Texas

ANSWER—Edema of the extremities may result from systemic disease or from a disease process localized to the legs themselves. The commonest systemic diseases causing edema are, of course, those of the heart, kidneys or liver. These being normal, other systemic conditions to be thought of include certain nutritional abnormalities, Milroy's disease, hypothyroidism, chlorosis and other chronic anemias, angioneurotic edema, Meige's disease and certain parasitic infections.

It is possible that the patient has a nutritional edema, but the lack of response to a high protein diet suggests the need for consideration of other causes and additions to treatment. Foods rich in vitamin B might be added to the diet. There is no single pathognomonic feature about nutritional edema, and the diagnosis must be made by exclusion of other causes and from the results of treatment. Nutritional edema may occur in several deficiency states: scurvy, beriberi, and the inanition resulting from the ingestion of insufficient protein and an excess of salt and fluid. The former two deficiency diseases are associated with a variety of signs and symptoms aside from edema.

A chronic edema such as this does not suggest the angioneurotic type, and the latter is probably not caused by cocaine, though the spray might be stopped to prove this point. Milroy's disease presents a persistent hereditary edema of the legs characterized by rather sharp demarcation of the edema, frequently periodic fever and gastric upsets, and the patient generally gives a history of its occurrence in other members of his family.

But there are cases presenting all the features of Milroy's disease in which a single member of the family is involved. In Meige's disease a peculiar trophedema is present, the cause of which is unknown.

Nephritis may occur without albuminuria, but in such cases lesions in the cardiovascular system are usually found, such as hypertension, retinal changes and cardiac enlargement. Were the edema due to an Ebstein type of nephrosis there should be rather marked albuminuria. In such cases the serum-globulin ratio is often inverted. A basal metabolic rate would exclude hypothyroidism as the basis for the swelling. Edema without albuminuria is a feature of certain chronic anemias, one of which is chlorosis, in which the patient is usually anemic and the blood studies show a greater drop in hemoglobin than in the red blood cells. Edema without albuminuria may occur with certain parasitic infections in which eosinophilia is usually present. *Blastocystis hominis* is considered nonpathogenic.

The most common forms of edema from localized tissue disease arise (1) from lymphangitis, (2) with localized obesity, and (3) from venous stasis. The edema of lymphangitis is usually a brawny one, is relatively nonpitting, and is usually preceded by or associated with definite signs of cellulitis. A local deposition of fat about the ankles is frequently seen in young girls and in the early stages it may be associated with some pitting edema resulting from a combination of venous stasis and fat deposition. Frequently familial, it may later develop into a lipodystrophy about the ankles. Postural edema from venous stasis usually increases during the day and diminishes at night. Elevation of the legs for a few hours usually reduces it materially in which case treatment by supporting bandages is indicated.

SYPHILIS AND TRANSFUSION

To the Editor—Will you give me your opinion concerning the following. A man, aged 33, had a primary lesion, Feb. 5, 1930. A dark field examination was positive. The blood Wassermann reaction was 2 plus. The patient was promptly put on neoarsphenamine, two injections weekly of 0.6 Gm., for eight doses. Then he was given two injections of his methyl salicylate 4 grains (0.26 Gm.) each, and four of mercuric salicylate, 2 grains (0.13 Gm.) each. The Wassermann reaction after this course was three plus. No rest period was permitted and the patient received, within the following two years, thirty-two injections of neoarsphenamine, each of 0.6 Gm., fifty-two of mercuric salicylate, each injection 2 grains, and sixty-three injections of sodium bismuth thioglycollate. During this interval the patient showed no evidences of mercurialism or bismuthism. The blood Wassermann reaction at the end of these treatments was negative. At the same time at which this blood Wassermann test was taken, three samples of spinal fluid were tested. Two samples were sent to the local board of health laboratory and one was sent to a private laboratory, conducted by a reliable pathologist. The board of health laboratory reported a four plus Wassermann reaction for each of their specimens. The private pathologist reported a negative Kahn and a negative colloidal gold test. What is your opinion concerning this four plus spinal fluid test following all this intensive treatment which was crowded in the space of two years? The patient, clinically, gives absolutely negative results on examination. This patient is a member of the local fire department and the members of the fire department are frequently called on to give blood for transfusion at the local city hospital, which has a large general surgical service. I have advised this patient not to donate any blood, if ever called on, but to take the hospital doctor into confidence and notify him concerning his having had a syphilitic infection for which he received treatment. What is your opinion concerning any syphilitic patient who has been pronounced "cured" after receiving extreme intensive treatment so that he shows a negative blood or spinal fluid Wassermann reaction? Could he at any time offer his blood for transfusion without danger of carrying the infection to the recipient? Do you consider that this patient still has an active form of syphilis after all this treatment? I have advised further treatment, however, in view of his four plus spinal fluid. Please omit name.

M.D., New Jersey

ANSWER—A good deal of the confusion that has developed in this case results from inadequate examination of the spinal fluid by all the laboratories concerned. An accurate cell count and total protein or globulin estimation would have been helpful as a check on the positive Wassermann test. Moreover, the Wassermann test should have been reported quantitatively and not merely as positive or negative, for the quantitative gradient is sometimes of material aid in determining the validity of serologic observations. It is certainly possible for a patient to have an abnormal spinal fluid with a negative blood Wassermann reaction, even after the described intensive treatment, but it is not probable. The use of a Kahn precipitation test on the spinal fluid in place of the Wassermann test increases somewhat the difficulties of interpretation, though the record of the Kahn test in spinal fluid examination under controlled circumstances is good.

The obvious procedure in a case of this sort is a repetition of the spinal fluid examination with the sending of the fluid to a competent laboratory that will make a complete examina-

tion It is, of course, necessary that the laboratory be given a specimen on which an adequate examination can be made, i. e., fresh, and free from blood and other contaminants

With reference to the patient's eligibility for transfusion, the status of "cure" in syphilis is still too uncertain to make it advisable for any person who has ever had the disease to offer himself as a donor for transfusion except to a person known definitely to have syphilis at the time of the transfusion. Even in this case the technic should be such that there is no possibility of interchange of blood

UNUSUAL BLEEDING

To the Editor—A woman, aged 53 has had epistaxis all her life. She knows that her mother had one severe nosebleed. She has eight brothers and sisters who have never been so afflicted. Her past history is negative. There was one pregnancy at which she bled profusely. The menstrual flow lasts from five to seven days, with severe hemorrhage. Always during menstruation she has a nosebleed and also during the time between periods. She thinks that her nose bleeds more profusely during menstruation. She is now in her climacteric and has gone for six months without menstruating but she still has nosebleeds. She weighs 200 pounds (90 Kg). There are no visible changes in the nose and throat to account for his hemorrhage. Examination of the chest and abdomen is negative. The pulse rate is 90 the blood pressure 140 systolic 85 diastolic. Examination of the urine is negative. The hemoglobin is 91 per cent red blood cells number 4 580 000 white blood cells 9 550, the coagulation time is two and one half minutes. The differential count is normal. Please omit name.

M D, Wisconsin

ANSWER—In spite of the relationship between the epistaxis and the menses, this is most likely not a case of vicarious menstruation. By the latter is meant extragenital bleeding from some part of the body occurring at regular intervals that correspond with the menstrual periods. Even before the menopause, the nosebleeds were not limited to the menstrual periods but occurred at other times as well. The increase that took place during menstruation may be attributed to the greater blood supply in the nasal mucosa which occurred at that time. The red blood count and the hemoglobin determinations are practically normal, hence the loss of blood has not been severe. In most cases like the one cited, a careful examination of the nose will reveal a local cause for the bleeding. If none can be found, it may be assumed that there is some disturbance in the permeability of the nasal capillaries. A similar condition may have been present in the uterine endometrium to account for the profuse menstrual periods, although here some disturbance in the endocrine glands may have been the responsible factor. Therapy is difficult to suggest because the etiology is unknown. The coagulation time is normal but the bleeding time and the platelet count should also be determined. Since the blood pressure is not abnormally high for a woman of 53, no treatment need be directed toward its reduction. The patient's weight is excessive but this most likely has no connection with the nosebleeds. In spite of this, an effort should be made to diminish this weight and build up the patient's general condition.

PEMPHIGUS FOLIACEUS

To the Editor—A case of pemphigus has been brought to my attention in a woman aged 60. From the universal involvement of the skin and the large easily stripped scabs and flaccid blebs, a diagnosis of pemphigus foliaceus has been made. Constitutional and subjective symptoms are marked with extreme itching burning anorexia insomnia and moderate fever. The disease has been spreading for four months, involving the entire skin but not the mucous membranes. Solution of potassium arsenite (Fowler's solution) has not checked the disease and has been discontinued because of the development of edema of the feet. Quinine hydrochloride from 4 to 6 grains (0.26 to 0.4 Gm) has been given orally for about two weeks. A slight improvement in the back is shown although whether this is spontaneous or due to quinine is unknown. Is quinine intravenously indicated? The usual soothing powders and powder bed have been used externally. I have heard indirectly of a case in Buffalo which has been cured by intravenous use of a drug of unknown identity from Germany. Do you know what drug this may be? Are any other drugs than arsenic and quinine of use? Is pemphigus foliaceus capable of remission? Have any estimates been made of the percentage of fatalities? The strength and weight and courage of the patient have been maintained. Is this of favorable omen? Please withhold name.

M D Massachusetts

ANSWER—If the case is one of pemphigus foliaceus, as seems probable from the description given the prognosis is grave in any patient but particularly in a person of 60. Recovery from this form of pemphigus is rare. The absence of lesions on the mucous membranes may be taken as a ray of hope however. Quinine by mouth or intravenously, is indicated pushed to tolerance.

The Davis treatment which includes the intramuscular administration every other day of a proprietary extract prepared from blood platelets and containing thromboplastic substances

mixed with lactose, with iron cacodylate intravenously on the alternate days, may be tried. Mild foreign protein treatment, as injections intramuscularly of the patient's own blood, or injections of vaccines, may be of benefit.

Mercurochrome-220 soluble intravenously enough to cause a febrile reaction has been known to give benefit in some cases of pemphigus but is strenuous treatment and must be given with great caution to a patient of this age. The same caution applies to the use of arsphenamine or its modifications.

High rectal lavage continued over a long period has been credited with recoveries from ordinary chronic pemphigus.

The continuous bath or long and frequently repeated baths are often beneficial, keeping down the odor and soothing the patient. The length and frequency must be graduated according to the effect on the particular patient. The temperature must be kept at about 98 to 100 F, the tub protected from drafts and a careful watch maintained on the pulse. It may be necessary to have a cool pad on the forehead. When the bath is ended, the skin should be dabbed almost dry and anointed with plain ointment of rose water or wool fat thinned with petrolatum. Or the patient may be put into a bed full of talcum powder and covered with the same powder that has already been used.

The drug from Germany might be one of many. No new German drug has gained any reputation for its value in these cases. As already indicated, remissions may occur in pemphigus foliaceus once in a while and cures have been reported in a few cases. The percentage of fatalities would probably run over 99, though no statistics are available. The maintenance of strength, weight and courage and the absence of lesions of the mucous membrane are favorable, but in spite of these the prognosis is bad.

GALACTOSE TOLERANCE TESTS—CHOLESTEROL IN BLOOD IN JAUNDICE

To the Editor—1 Will you kindly give me information as to the significance of the galactose tolerance test in cases of jaundice? How is this test performed? 2 What is the value of the determination of cholesterol esters in the blood in cases of jaundice? Kindly omit name.

M D, New York.

ANSWER—1 The galactose tolerance test is a liver function test. Its significance in cases of jaundice is therefore related to the amount of injury to the liver that is associated with the jaundice in a particular case. In this connection, the large functional reserve of the liver must be remembered. It has been shown that, in dogs, 70 per cent of the liver substance can be excised, with survival of the animal and the restoration of the liver bulk in a few weeks. There is every reason to believe that the human liver has similarly large powers of recuperation. Thus it is possible to have constant slow destruction of liver substance occurring in patients, with simultaneous regeneration, so that liver function tests would not reveal any liver damage. However, in cases of acute hepatitis of whatever origin affecting all or most of the liver, or in cases in which a chronic condition has cumulatively affected a large part of the liver, the galactose tolerance test may be expected to reveal some dysfunction. It is therefore of especial value in the differential diagnosis of painless jaundice (Shay, Harry, and Schloss, Eugene. Painless Jaundice, THE JOURNAL, April 23 1932, p 1433).

The rationale of the use of galactose for a liver function test depends on the facts that it is readily absorbed from the gastrointestinal tract, it is converted into glycogen by the liver with some difficulty as compared to other sugars, it is practically not directly utilizable by other tissues than the liver, and there is hardly any kidney threshold for this substance. It has been shown that the average normal individual excretes only 0 to 3 Gm of galactose in the urine within five hours after ingesting 40 Gm. This, then, may be taken as the measure of the ability of the normal liver to handle galactose. Liver damage is supposed to be present when more than 3 Gm of galactose is excreted in the urine within five hours. Since 3 Gm is a liberal outside limit for the normal, even small amounts over that figure are considered to be abnormal.

The following is one modification of the galactose tolerance test.

After an overnight fast, the patient is given exactly 40 Gm of galactose in two glasses of water (about 500 cc). The mixture may be flavored with a few drops of lemon juice. The patient may take water but nothing else for the next five hours. During this period the urine is collected at hourly intervals, measured and mixed. A sample of the mixed urine is then analyzed for total sugar by Benedict's method and the amount of sugar in the total urine output is calculated. When there is dextrose in the urine, as in patients with diabetes,

this must be first removed by yeast fermentation from the sample to be analyzed

2 The value of the determination of cholesterol esters in the blood in cases of jaundice depends on the fact that, when taken in conjunction with the determination of the total cholesterol and bilirubin content of the blood, it affords a method of distinguishing between jaundice due to biliary obstruction and that due to parenchymatous liver disease. E Z Epstein has recently reported a comprehensive study of a large number of cases (Cholesterol of Blood Plasma in Hepatic and Biliary Diseases, *Arch Int Med* 50 203 [Aug] 1932). Briefly, in obstructive jaundice there is usually a hypercholesteremia, which roughly parallels the degree of obstruction and the bilirubinemia and returns to normal with the relief of the obstruction. The cholesterol esters rise concomitantly with the total cholesterol in about half the cases, in other cases (probably associated with more liver damage) the cholesterol esters remain normal but lag relatively behind the increased free cholesterol. In cholecystitis and cholelithiasis without obstruction, the blood cholesterol does not vary significantly.

In degenerative diseases of the liver there is usually a marked divergence between the bilirubinemia and the cholesteremia, the more pronounced the liver damage, the greater the tendency to hypocholesteremia that accompanies the hyperbilirubinemia. In these cases the cholesterol esters are even more depressed than the total cholesterol and parallel the degree of liver damage even more accurately. A rise in the cholesterol ester value in such a case may be the first indication of an improved prognosis.

BLOOD UREA NITROGEN—DEXTROSE TOLERANCE

To the Editor—1 There has been considerable discussion concerning a stand which I have taken on a small point and I wish to know what you have to say concerning it. Until recently, I sent my blood chemistry work to an approved laboratory run by an experienced technician. The reports on blood sent for urea nitrogen examinations were returned under both headings "blood urea" and "urea nitrogen," the two terms apparently used interchangeably. On questioning the technician I readily saw that she was unaware of any difference in meaning. Later, while talking with a technician formerly employed in a large laboratory in Los Angeles, I found that she also was of the opinion that the two terms covered the same thing. She also stated that requests that came in for "blood urea" or "urea nitrogen" were reported in milligrams of "blood urea nitrogen." This laboratory handles a large volume of outside work and I contend that the use of this term to cover requests for either "blood urea" or "urea nitrogen" should not be done. It is my belief that the report should be made according to the request, as the difference between the two results is a matter of multiplying the urea nitrogen figures by 2.14. I do not wish to deprecate the intelligence of physicians on the outside by suggesting that they are not capable of interpreting the report correctly. However, in view of the fact that there is this confusion among trained and state approved technicians employed solely in laboratory work, it is not impossible to see that physicians who have so little laboratory work to be done that they cannot have a laboratory of their own might forget slight technicalities. To them such a report might mean either, in one case it would be all right and in the other it would not be correct. Fortunately the patient's life does not depend on these reports, but I would appreciate knowing the opinion of others, as I seem to be making myself obnoxious. 2 Is there a typical curve for dextrose tolerance in the case of epileptic patients? 3 Please refer me to a complete study of blood sugars and sugar tolerance tests done on adults. I have been getting freak results from repeated tests on the same individual. The technique and results have been checked and seem to be working properly. Please omit name. M D, California

ANSWER—1 The normal blood urea nitrogen is between 10 and 15 mg per hundred cubic centimeters of blood, and it is this value with which most practicing physicians are familiar. It is advisable, therefore, to report a blood urea or urea nitrogen request in terms of urea nitrogen. This enables the physician to compare the urea nitrogen value with the nonprotein nitrogen more readily. It is the custom to print the normal values for comparison.

In the earlier literature there was much confusion regarding the amount of blood urea in the blood because of the use of numerous methods, and also because of the failure to distinguish between blood urea nitrogen and blood urea values.

The blood urea content is, as the correspondent states, 2.14 times the blood urea nitrogen content. Or, the urea value multiplied by 0.467 gives the urea nitrogen. The normal blood urea values are between 20 and 32, the normal nonprotein nitrogen between 25 and 40 mg per hundred cubic centimeters of blood.

2 The dextrose tolerance of epileptic patients is usually normal. Dr E P Joslin states that he has not seen a case of epilepsy in 5,091 patients with true diabetes. The coincidence of idiopathic epilepsy and true diabetes is therefore rare. An epileptic patient on a ketogenic diet, i. e., a diet in which the supply of available sugar is reduced, will show a lower blood

sugar curve, but the fasting blood sugar of epileptic patients is usually normal.

3 Blood sugar determination and sugar tolerance tests are described in any larger textbooks on diabetes and in books on laboratory methods, such as "Approved Laboratory Technic" by Kolmer and Boerner, New York, D Appleton & Co, 1931.

DESENSITIZATION IN SENSITIVITY TO PLANTS

To the Editor—I have under my care a patient who is employed here and has charge of the greenhouse. For some years he has had a dermatitis of both hands and wrists, and recently this has appeared on his face, which became painful and tender and so swollen that his eyes were closed. The flowers to which he is sensitive are primrose, poinsettia and chrysanthemum. Of course, it is easy to say that this man can find some other occupation, but I am anxious to desensitize him, if possible, to the two plants with which he is most constantly in contact, the chrysanthemum and poinsettia. Would you please advise me the best course to pursue in proceeding to desensitize this patient? What course should he be given, what dosage, and how should it be given, that is, should it be given subcutaneously or otherwise? Can you advise me where preparations can be obtained, and approximately the cost?

M D, Minnesota

ANSWER—Testing by the patch test method is advised with leaves of primrose, poinsettia and chrysanthemum and also tomato leaves, if any are grown in the greenhouse. The plants that cause eczema should give an eczematous reaction at the site of contact within a period of from twenty-four to forty-eight hours. It should last about a week.

There is no point in treating the patient with a watery extract to the plants to which he reacts, since the results would almost certainly be disappointing. Relief may be obtained by extracting the oil out of the plants to which he reacts with acetone, concentrating this to minute volume through evaporation of the acetone, and picking up the oily residue in absolute alcohol. This extract should be filtered and diluted down serially so that the lowest dilution amounts to 1 in 10,000 solution of the oil. He can again be tested with each dilution. Treatment can be given with an alcoholic extract, below that which causes a positive skin test, through weekly injections of the alcoholic extract diluted with water to such a point that the resulting mixture contains not more than 10 or 15 per cent of alcohol. The dose can be stepped up to such a point that he tolerates ordinary exposure. Even then, however, he might show dermatitis on direct contact with the plants. It would enable him to tolerate a much greater exposure than he can stand at the present time.

TREATMENT OF DISTURBANCE OF CIRCULATION

To the Editor—A woman, about 65 years of age, has a peculiar circulatory condition. The systolic blood pressure is from 210 to 270, the diastolic from 80 to 85. The heart is slow, the rate being from 30 to 35 per minute. Her digestion seems to be poor and she is nervous. The kidneys do not seem to be affected. Can anything be done and what prognosis should I give? Please omit name. M D, Nebraska

ANSWER—This patient presents many interesting possibilities. A pulse pressure of such height, namely 130 to 190, is highly suggestive of the existence of an aortic regurgitation. One must therefore carefully reexamine the patient for the presence of cardiac enlargement, which in these cases is directed downward and to the left, a visible or palpable apical thrust, a blowing diastolic murmur at the base of the heart, commonly heard best at the third left interspace near the sternal margin and transmitted down the sternum, the Duroziez murmur over the femoral artery, visible, pulsating carotid and brachial arteries, and a capillary pulse at the margins of an artificially produced hyperemic area on the forehead. A bounding, collapsing pulse should be present unless the peripheral arteries are too rigid. If some or all of these signs have been observed, the most important etiologic factors to be considered are syphilis, arteriosclerosis and rheumatism. The history and blood Wassermann or Kahn tests will be of value, and the degree of peripheral and retinal arteriosclerosis may offer a clue toward the solution of the etiology. In the absence of aortic insufficiency, high pulse pressures have been observed in instances of hypertension and arteriosclerosis and in thyrotoxicosis, but no signs pointing to the latter are mentioned. The slow pulse rate of 30 to 35 is indicative of complete heart block, the ventricles and auricles having their own independent rhythm, the pathologic disturbance is in the conducting bundle of His and may be due to scarring secondary to coronary sclerosis or to gummatous changes. Such a high systolic pressure, even in the presence of aortic insufficiency, warrants a diagnosis of hypertension, which is probably associated with renal arteriosclerosis or so-called nephrosclerosis (primary contracted kidneys). From a prognostic standpoint it is important to carry out studies on the renal function, for which the

phenolsulphonphthalein test, concentration and dilution test and blood urea or nonprotein nitrogen are adequate. Finally, it is to be recalled that there are instances of complete heart block in which, because of the long diastolic phase and more complete filling of the heart, the systolic pressure may reach as high as 200 and over and the diastolic pressure remain normal or subnormal. The indigestion may be due to a mild degree of heart failure, corroborative evidence of which would be a palpably enlarged tender liver.

The prognosis is difficult to conjecture but, in the face of good renal function, is dependent on the integrity of the myocardium. Coronary thrombosis in particular is to be feared. The therapy consists of rest for one or two hours after meals and the avoidance of overexertion, excessive stimulation and fatigue. Only light exercise, such as short walks, may be permitted. Potassium iodide, 0.3 Gm (5 grains) and sodium bromide, 0.65 Gm (10 grains) three times daily are useful adjuvants. In the presence of Adams-Stokes syndrome, epinephrine for the acute phase and ephedrine sulphate, 0.024 Gm (three-eighths grain), three times daily as a prophylactic measure are of distinct efficacy. Tincture of digitalis may be given in doses of from 0.6 to 1 cc (10 to 15 minims) three times daily for cardiac failure, if present.

EFFECTS OF EPINEPHRINE ON BLOOD SUGAR

To the Editor—When epinephrine is injected subcutaneously, it is known that the blood sugar rises and may even spill over into the urine. I should like to know how soon after the injection the blood sugar rises to what height it generally goes, how long the rise lasts and whether the return is rapid or slow. Kindly let me have as many references as possible with regard to this subject and any information immediately concerned with the questions I have asked.

ISAAC APPERMAN, M.D., New York.

ANSWER—There are surprisingly few references in the recent literature to the characteristics of the blood sugar curve after the injection of epinephrine into normal human beings. It has been shown in animals that epinephrine does not produce a hyperglycemia in the absence of the liver. The liver is therefore considered to be the source of the blood sugar, and the extent of epinephrine hyperglycemia will thus depend to a large extent on the amount of carbohydrate stored in this organ. There is also some evidence to show that part of the sugar which appears after the administration of epinephrine does not originate from glycogen stores but is newly formed from non-carbohydrate materials. Another factor that influences the hyperglycemia obtained depends on the fact that epinephrine is rather quickly destroyed by the tissues. The manner and site of injection will therefore influence the results obtained. In general, subcutaneous administration produces less acute and more prolonged effects than intravenous injection. In order to obtain comparable blood sugar curves in different normal subjects after the administration of epinephrine, one would therefore have to standardize the following factors: (1) dose of epinephrine as compared with bulk of subject, (2) carbohydrate stores of subject—previous diet, fasting period, (3) site and manner of administration of epinephrine, (4) psychic factors. Hyperglycemia may follow violent emotion or pain.

The glycogenolytic effects of epinephrine following its subcutaneous injection have been observed chiefly in lower animals, particularly the rabbit. In this animal the attendant hyperglycemia has led to a severe glycosuria (as high as 8 per cent). Following the injection of 1 mg, the blood sugar elevation was distinct at the end of one hour and had returned to its normal value at the seventh hour. In man, 1 mg injected subcutaneously effects a negligible elevation detectable only at the end of the first hour. If a glycosuria occurs at all, it is detected during the second or third hour and lasts, perhaps, two hours more. In a composite curve (four experiments on rabbits) the blood sugar elevation reached nearly 0.4 per cent at the end of the second hour, with a slow return to normal. In man, a similar dosage raised the blood sugar only from approximately 0.1 per cent to 0.15 per cent. An excellent discussion, replete with bibliographic references appears in the *Handbuch der experimentellen Pharmakologie* by A. Heffter, volume II, second part (Adrenalin und Adrenalinverwandte Substanzen by P. Trudelnburg 1924 p 124).

We have been unable to find data on epinephrine hyperglycemia in normal human beings when all the factors cited were controlled. The data that are available however indicate that following the subcutaneous injection of from 0.75 to 1 cc of 1:1000 epinephrine hydrochloride into normal adult human beings the blood sugar begins to rise almost immediately and the hyperglycemia is definite within ten minutes and reaches its height in between one and two hours. The blood sugar falls to its original level within one or two hours after the peak of the curve and a short hypoglycemic phase may follow. The

time taken for recovery from the hyperglycemia seems particularly variable, as is also the height to which the blood sugar level ascends. Different reports give the height of the curve as from 156 to 250 mg per hundred cubic centimeters.

The following references may be of some assistance:

- Soskin, Samuel. Muscle Glycogen as a Source of Blood Sugar, *Am J Physiol* 81 382 (July) 1927.
Lamhe, C G, and Redhead, Frances A. Studies in Carbohydrate Metabolism, *Biochem J* 23 608 (number 4) 1929.
Cori, C F and Cori, G T. Absorption of Epinephrine from the Subcutaneous Tissue of the Rat, *Proc Soc Exper Biol & Med* 27 558 (March) 1930.
Loeb, R F, Reeves, Esther B, and Glasier, H P. Response to the Injection of Epinephrine in Hepatic Disease, *J Clin Investigation* 10 19 (April) 1931.
Abbott, A J and Van Buskirk, F W. The Blood Sugar Response to Epinephrine in Thyroid Fed Animals, *Am J M Sc* 182 610 (Nov) 1931.

FISTULA OF ABDOMINAL WALL AFTER SUPRAPUBIC PROSTATECTOMY

To the Editor—A man aged 71, whose general condition is apparently good, was operated on a little over four months ago for the removal of an enlarged prostate causing acute obstruction. At present he has no complaint excepting for a restlessness because the abdominal wound has not entirely closed, i.e., intermittently urine comes through a very small opening necessitating the frequent changing of the sterilized gauze dressing. Is this the customary experience in these cases and how long does it usually take before the opening closes permanently? Can anything be done to expedite matters? Kindly omit name.

M D, New Jersey

ANSWER—Failure of closure of the abdominal fistula may be based either on an obstruction at the vesical outlet or on complete epithelization of the fistular canal. Whether such an obstruction is of a temporary or a permanent character can definitely be decided on by cystoscopy executed through the abdominal fistula. At any rate an attempt at relieving the obstruction, thus facilitating the closure of the sinus, may be made by passing urethral sounds or inserting an indwelling catheter for a few days. The latter manipulation, of course, involves the danger of causing urethritis and epididymitis. The persistence of the fistula for four months makes a definite result of such instrumentation rather doubtful. Failure of this necessitates exposure of the fistular canal and the adjacent area of the bladder and proper suturing of the defect after the scar tissue is excised. Such an operation at the same time furnishes an opportunity to explore the vesical outlet and determine the character of a definite obstruction, if present, and permits proper surgical attention to such an obstacle.

ENLARGED THYMUS AND LARYNGEAL STRIDOR

To the Editor—Please advise me concerning the following case. A girl, aged 3 months, breast fed and weighing 13½ pounds (6 Kg) is of good nutrition and appears well. She was brought in for 'noisy' breathing which has been noticed since birth to some extent, but has been more marked for the last month. While the infant has vomited a great deal she has made steady progress in growth and development. The stridor may be heard with ease at a distance of 10 feet, but there is no cyanosis and the baby seems quite happy and comfortable. Roentgen examination reveals a wide shadow in the upper mediastinum, which is interpreted as an unusually large thymus. Is roentgen treatment advised? In view of the widespread confusion regarding the thymus gland, what attitude is the profession to take regarding such cases and inducing parents to feel secure without treating them? Is there no such thing as thymus death? Please omit name.

M D, California

ANSWER—During the last two years there has been a rather abrupt change in the attitude of writers regarding conditions relative to enlargement of the thymus gland in infants. It seems possible that for several years a large number of infants have been given x-ray exposures to reduce the size of a thymus that was not causing symptoms or that would have caused no further symptoms if the x-rays had not been used. Admitting that the exact mechanics of the production of symptoms and the cause of thymic disturbances are still unexplained, it seems possible that enlargement of the thymus and the resulting symptoms may not be the same in all sections of the country. It would seem conservative to venture the statement that the demonstration of the function of the thymus gland will be followed by a less extreme attitude than either the former overemphasis or the more recent tendency to disregard simple enlargement of the thymus gland.

Given an infant with noisy breathing, there are a number of conditions that must be considered as possible causative factors in addition to the thymus. Congenital laryngeal stridor is not infrequent and should certainly be considered in the case in question. This condition may safely be expected to correct itself by the second or third year. Growths of the larynx, the most common of which are papilloma, which may be single but frequently multiple, also cause noisy breathing. The direct

examination of the larynx is to be desired in these cases and undoubtedly should be done more often than at present. The laryngeal spasm of tetany is usually quite readily recognized because of the associated manifestations. As a result of the rather general and adequate antirachitic routine usually prescribed at the present time, this type of noisy breathing is being seen less often. The presence of malformations of the larynx, growths such as hemangioma, or enlarged thyroid rests are less frequently seen.

As to the thymus itself, in view of the controversy that has arisen, and the evaluation of anteroposterior plates and those taken laterally, when these show evidence of enlargement of the thymus gland and symptoms are present it seems conservative in the present state of our knowledge to recommend x-ray exposure.

IMPOTENCE WITH GLANDULAR DEFICIENCY

To the Editor—A white American farmer, aged 32 complains of impotence. This is characterized by weak erections occurring involuntarily. There is complete failure of erection when desired. The family history is negative for hereditary disease excepting that the maternal relatives all tend to obesity. He is an only child. He has had no contagious diseases. In 1918 he had influenza, recovery was prompt without complications. He has not had mumps. There is no history of venereal infection. At about the age of 20, after several years of normal libido, he had a gradual cessation of libido with an increase in weight amounting to about 30 pounds (13.6 Kg) in the course of a year. This change was not induced by any sexual shock, disappointment or other abnormality. He was married about six years ago and has one child about five years old. The marriage has no apparent effect on the condition. He has recently had treatment, probably arsenic, which had no effect. He has no discoverable physical impairment. The body symmetry is good. The height is 67 inches (170 cm) the weight about 190 pounds (86 Kg). The mouth and throat appear to be free from infection. The testicles and penis are normal in development. The prostate and seminal vesicles are not tender and show no enlargement. A urologic consultant reports a normal prostatic smear and normal posterior urethra. Blood counts, urine examination and a Kahn test give negative results. Is this a pituitary deficiency and, if not, what diagnosis and treatment can you offer? Please omit name.

M D, Illinois

ANSWER—The absence of certain laboratory tests in the description of the case makes it impossible to state whether the pituitary or thyroid or both are affected. There can be no harm, however, in prescribing for the patient 5 grain (0.3 Gm) tablets of the anterior lobe of the pituitary extract, two tablets (10 grains, or 0.65 Gm) to be taken four times a day. He may at the same time take tablets of one-fifth grain (13 mg) of thyroid extract, three times a day, and note whether there is any influence as regards the obesity. The pituitary tablets may be taken for several months without any possible danger, but while taking the thyroid the patient should be watched from time to time for unpleasant symptoms. For his weak erections, the administration of the sinusoidal faradic current is indicated. One cable is connected with a rectal electrode and the other with a wet-sponge electrode and the current is allowed to pass for about ten minutes. The rapidity of the current should be moderate and the strength should be as much as the patient can bear without any pain. These treatments may be given every four or five days. It is, of course, possible that the impotence may be primarily psychologic in its causation.

ERYTHEMA MULTIFORME

To the Editor—Will you kindly give me your opinion as to the correctness of my diagnosis of the following symptoms and, if correct, will you give me the latest opinion as to the cause and the treatment. The patient is a boy, aged 12 years, of healthy parents, three other children are healthy. The boy is underweight (70 pounds, or 32 Kg) and has had good health but is not very strong. In October, 1931, he had ulcers on the lip margin and on the inner side, apparently of herpes, they did not yield promptly yet were not taken seriously. At intervals since the ulcers have recurred but do not cause much discomfort. During the spell in October a few blebs came on the dorsal surface and the palm of the hands. In October, 1932, an ulcer came on the lower lip that has failed to respond to treatment. December 10, light red spots of varying size appeared on the hand, arms, legs and neck, also a few on the body, in the mouth and on the lips with slight itching and discomfort. Constitutional symptoms are absent or very light. In from thirty-six to forty-eight hours these spots showed some fluid of light color situated shallow in the skin with a thin layer of skin covering. After eruption there was a stinging or burning in this area. Some spots are small, others as large as a silver dollar (38 mm in diameter). Pemphigus has been diagnosed. Please omit name.

M D, Texas

ANSWER—The description suggests erythema multiforme rather than pemphigus because of the appearance of an erythema before the vesicles or bullae, the occurrence in successive attacks and the localization on the hands, arms and legs as well as in the mouth. Erythema multiforme occurs usually in a symmetrical manner, pemphigus is more apt to be asymmetrical. Erythema multiforme has been shown to have a relation to

rheumatism, purpura and erythema nodosum and is supposed to be due to showers of organisms in the blood, localizing and forming emboli in the superficial skin vessels. The attacks are usually short, clearing up spontaneously in a few weeks. The chronic ulcer of the lip in the case cited may be due to some complication, though the lesions of erythema multiforme may at times persist without known cause.

During the attack the patient should be kept at rest and given alkalis. The evolution of the lesions may be hastened by a small dose, one-fourth erythema dose, of roentgen rays. They may be concealed, if desired, by calamine lotion, 8 cc, prepared calamine, 8 Gm, and zinc oxide, 8 Gm, in solution of calcium hydroxide, and rose water to make 120 cc, dabbed on as desired. Between attacks a search should be made for infectious foci and they should be removed if possible. The heart should be examined carefully for any sign of endocarditis, and efforts to raise the patient's resistance should be made. A high vitamin, calcium rich diet, stock vaccine or a vaccine made from the intestinal flora may be used and ultraviolet radiation may be given.

SCABIES OR ECZEMATOID RINGWORM

To the Editor—There is a subacute skin disease in this community. It affects all ages, both sexes and all classes. It seems to be infectious. It begins as discrete papules, later becoming vesicles, along the extremities, and itches intensely. It spreads slowly and may even cover the body, except the scalp, palms and soles. It causes no systemic reaction except in children, and then only slight. Please tell me what to do for it.

M L STUBBLEFIELD, M D, Gorman, Texas

ANSWER—On so meager a description it is impossible to do more than consider the possibilities. The first thought is of one of the forms of itch caused by the animal parasites. Scabies is most likely, for the milder, less common forms are not seen in the winter. Scabies, however, causes lesions of the palms in young children. In tender skin the burrows can often be seen leading to a papulovesicle, just beyond which the parasite lies, and can be discovered by slicing off the skin at this point very superficially.

Ecematoid ringworm might be considered, but it is difficult to understand how it could affect so many. The fungus can be found by inverting on a slide the roof of a vesicle from the toes or fingers, treating the specimen for from one to seventy-two hours in 10 per cent sodium hydroxide solution in a moist chamber, then examining with the high dry lens.

The treatment of ringworm is perhaps most often successful with the use of Whitfield ointment, from 3 to 6 per cent of salicylic acid and from 6 to 12 per cent of benzoic acid in an ointment base, applied once a day to the lesions of the extremities, with zinc oxide ointment to the rest of the body where involved.

Impetigo hardly comes into consideration, for it seldom begins on the extremities.

INCREASING WEIGHT

To the Editor—I note in the February 4 issue of THE JOURNAL an inquiry by 'M D West Virginia' concerning the technic of increasing weight. I was somewhat surprised that the answer to the doctor's inquiry made no reference to the surest technic namely that of a rest cure with superalimentation by means of exclusive milk diet.

If physical exertion is reduced to a minimum and the patient receives a glass (8 ounces) of ordinary pasteurized milk every half hour from 7 a m to 7 p m, making 6 quarts a day, without any other food or beverage or medication or cathartics or enemas, a gain in weight will occur at the average rate of 2½ pounds a week.

If the number of pounds of weight to be gained is determined by reference to height and weight tables it is possible to estimate for the given case the length of time for which this rest cure must be instituted. For example in order to gain 20 pounds, an eight weeks rest cure should be planned for.

It would take too much space to discuss this treatment in detail but the doctor who is interested may be referred to my Manual of Psychiatry (ed 6, New York, John Wiley & Sons, Inc, 1927), pages 392 to 395.

AARON J ROSANOFF, M D, Los Angeles

CARBON DIOXIDE WITH NITROUS OXIDE OXYGEN

To the Editor—I noted in Queries and Minor Notes (THE JOURNAL, February 18 p 519) the suggestion that carbon dioxide should not be used with nitrous oxide and oxygen.

Carbon dioxide has been used in the Mayo Clinic in approximately 40,000 cases in which nitrous oxide and oxygen have been used. If sufficient oxygen is given to maintain normal metabolism, carbon dioxide not exceeding about 5 per cent in the total mixture in the breathing bag, is beneficial rather than harmful and the regulating effect of carbon dioxide on respiration may be obtained when nitrous oxide and oxygen are used without reducing the oxygen content of the mixture below that necessary for satisfactory anesthesia and oxidation. Usually carbon dioxide is added to the nitrous oxide-oxygen mixture only intermittently during anesthesia for the purpose of controlling respiration.

JOHN S LINDY, M D, Rochester, Minn

Council on Medical Education and Hospitals

COMING EXAMINATIONS

AMERICAN BOARD FOR OPHTHALMIC EXAMINATIONS Milwaukee, June 12 Sec. Dr William H Wilder, 122 S Michigan Blvd Chicago
AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY The written examination will be given in cities of the United States and Canada where there is a Diplomate who may be empowered to conduct the examination April 1 The general oral clinical and pathological examination will be held in Milwaukee, June 13 Sec, Dr Paul Titus, 1015 Highland Bldg, Pittsburgh
AMERICAN BOARD OF OTOLARYNGOLOGY Milwaukee June 12 Sec, Dr W P Wherry 1500 Medical Arts Bldg Omaha.
ARIZONA Phoenix, April 4 Sec., Dr B M Berger 743 E McDowell Rd. Phoenix.
ARKANSAS Basic Science Little Rock May 1 Sec. Mr Louis E Gehauer 1002 Donoghey Bldg Little Rock.
CALIFORNIA Reciprocity Los Angeles April 19 Sec Dr Charles B Pinkham 420 State Office Bldg Sacramento
COLORADO Denver April 4 Sec. Dr Wm Whitridge Williams, 422 State Office Bldg Denver
CONNECTICUT Endorsement Hartford March 28 Sec, Dr Thomas P Mirdock 147 W Main St Meriden
HAWAII Honolulu April 10 13 Sec, Dr James A Morgan, 48 Young Bldg Honolulu
IDaho Boise April 4 Commissioner of Law Enforcement Hon Emmitt Pfost Boise.
ILLINOIS Chicago April 11 13 Superintendent of Registration Mr Paul B Johnson Springfield
MINNESOTA Basic Science Minneapolis April 4 Sec Dr J C McKinley 126 Millard Hall University of Minnesota Minneapolis Regular Minneapolis April 18 20 Sec, Dr E J Engberg 350 St. Peter St St. Paul
MONTANA Helena April 4 Sec, Dr S A Cooney 7 W 6th Ave, Helena.
NATIONAL BOARD OF MEDICAL EXAMINERS Parts I and II The examinations will be held at centers where there are five or more candidates May 8 10 June 26 28 and Sept 13 15 Ex Sec Mr Everett S Elwood 225 S 15th St Philadelphia.
NEW MEXICO Santa Fe April 10 Sec Dr P G Cornish Jr, 221 W Central Ave Albuquerque
RHODE ISLAND Providence April 6 7 Dir Dr L A Round 319 State Office Bldg Providence.
TENNESSEE Memphis March 23 24 Sec Dr A B DeLoach Medical Arts Bldg Memphis
WISCONSIN Reciprocity Milwaukee April 11 Sec Dr Robert E. Flynn, 401 Main St La Crosse

New York September Report

Mr Herbert J Hamilton, chief, Professional Examinations Bureau, reports the examination held by the New York State Board of Medical Examiners in Albany, Buffalo, New York and Syracuse Sept 19-22, 1932 The examination covered 9 subjects and included 10 questions An average of 75 per cent was required to pass One hundred and seventy-nine candidates were examined, 134 of whom passed and 45 failed The following colleges were represented

College	PASSED	Year Grad	Number Passed
University of Colorado School of Medicine	(1930)	(1930)	1
Georgetown University School of Medicine	(1928) (1932) 5	(1932) 5	6
George Washington Univ School of Med	(1931) 2	(1932) 7	9
Howard University College of Medicine	(1928), (1930)	(1930)	2
Loyola University School of Medicine	(1931)	(1931)	1
Rush Medical College	(1925) (1931)	(1931)	2
School of Medicine of the Division of Biological Sciences University of Chicago	(1931)	(1931)	1
University of Illinois College of Medicine	(1932)	(1932)	1
Indiana University School of Medicine	(1932)	(1932)	1
University of Louisville School of Med	(1929) (1932) 4	(1932) 4	5
Johns Hopkins University School of Medicine	(1927) (1930)	(1930)	2
University of Maryland School of Medicine and College of Physicians and Surgeons	(1929) (1932) 2	(1932) 2	3
Boston University School of Medicine	(1932)	(1932)	1
Harvard University Medical School	(1928) (1929)	(1932) 3	3
Tufts College Medical School	(1932)	(1932)	1
University of Michigan Medical School	(1917)	(1917)	1
St Louis University School of Medicine	(1931) (1932) 4	(1932) 4	5
Washington University School of Medicine	(1931) (1932)	(1932)	2
University of Nebraska College of Medicine	(1930)	(1930)	1
Albany Medical College	(1932) 2	(1932) 2	2
Columbia University College of Physicians and Surgeons	(1929) (1931) 2	(1932) 4	7
Cornell University Medical College	(1930) (1932) 3	(1932) 3	4
Long Island College of Medicine	(1931) 2	(1932) 9	11
New York Homeopathic Medical College and Flower Hospital	(1932) 8	(1932) 8	8
Syracuse University College of Medicine	(1931) (1932) 2	(1932) 2	3
University and Bellevue Hosp Med Coll	(1931) 2	(1932) 10	12
University of Buffalo School of Medicine	(1929) (1932) 4	(1932) 4	5
University of Rochester School of Medicine	(1931) (1932)	(1932)	2
Hahnemann Med Coll and Hosp of Philadelphia	(1932) 2	(1932) 2	2
Jefferson Medical College of Philadelphia	(1930)	(1930)	1
University of Pennsylvania School of Medicine	(1932)	(1932)	1
Woman's Medical College of Pennsylvania	(1931)	(1931)	1
Medical College of the State of South Carolina	(1931)	(1931)	1
University of Vermont College of Medicine	(1931)	(1931)	1
Medical College of Virginia	(1932)	(1932)	1

Queen's University Faculty of Medicine	(1929), (1930)	2
University of Toronto Faculty of Medicine	(1931)	1
McGill University Faculty of Medicine	(1929)	1
Karl Franzens Universität Medizinische Fakultät, Graz	(1931)	1
Medizinische Fakultät der Universität Wien	(1926)*	1
Université de Lyon Faculté de Méd et de Pharmacie	(1932)*	1
Regia Università di Genova degli studi Facoltà di Medicina e Chirurgia	(1931)*	1
Regia Università di Napoli Facoltà di Medicina e Chirurgia	(1927) (1931)	2
Regia Università di Roma degli studi Facoltà di Medicina e Chirurgia	(1932)*	1
Licentiate of the Royal College of Surgeons Edinburgh	(1932)*	1
University of Edinburgh Faculty of Med	(1931),* (1932, 4)*	5
Osteopaths		2

College	Year Grad	Number Failed
University of Colorado School of Medicine	(1929)	1
Yale University School of Medicine	(1931)	1
Georgetown Univ Sch of Med	(1930), (1931) 2, (1932) 2	5
University of Kansas School of Medicine	(1929)	1
University of Louisville School of Medicine	(1928)	1
Johns Hopkins University School of Medicine	(1925)	1
St. Louis University School of Medicine	(1932)	1
Long Island College of Medicine	(1932)	1
New York Homeopathic Med Coll and Flower Hosp	(1932, 3)	3
Syracuse University College of Medicine	(1932) 2	2
University and Bellevue Hospital Medical College	(1932)	1
University of Buffalo School of Medicine	(1932)	1
Hahnemann Med College and Hospital of Philadelphia	(1931)	1
Jefferson Medical College of Philadelphia	(1930)	1
Temple University School of Medicine	(1932)	1
University of Pittsburgh School of Medicine	(1927)	1
Queen's University Faculty of Medicine	(1925)	1
Laval University Faculty of Medicine	(1931)	1
Lekarské Fakulté Karlovy University Prague	(1930)*	1
University of London Faculty of Medicine	(1930)*	1
Université de Paris Faculté de Médecine	(1930)*	1
Medizinische Fakultät der Friedrich Wilhelms Universität Berlin	(1929), (1931)*	2
Magyar Királyi Erzsébet Tudományegyetem Orvostudományi Hungaria	(1927)*	1
Regia Università di Bologna degli studi Facoltà di Medicina e Chirurgia	(1932)*	1
Regia Università di Napoli Facoltà di Medicina e Chirurgia	(1925)*	1
Regia Università di Palermo degli studi Facoltà di Medicina e Chirurgia	(1930)	1
Regia Università di Roma degli studi Facoltà di Medicina e Chirurgia	(1931), (1932)*	2
Psycho-Neurological Institute Petrograd Russia	(1910)*	1
University of Saratov Faculty of Medicine Russia	(1922)*	1
Licentiate of the Royal College of Physicians, and of the Royal College of Surgeons Edinburgh and of the Royal Faculty of Physicians and Surgeons of Glasgow	(1931)	1
University of Edinburgh Faculty of Medicine	(1931)* (1932)*	2
University of St. Andrews Conjoint Medical School, St Andrews and Dundee, Scotland	(1932)*	1
Osteopaths		3

Mr Hamilton also reports 32 candidates licensed by endorsement from Nov 1, 1932, to Jan 1, 1933 The following colleges were represented

College	LICENSED BY ENDORSEMENT	Year Grad	Endorsement of
Bennett Medical College Chicago	(1910)	(1910)	Illinois
State University of Iowa College of Med	(1930)	(1931)	Iowa
University of Louisville Medical Department	(1917)	(1917)	Indiana
Johns Hopkins Univ School of Med.	(1907), (1921), (1929)	(1929)	Maryland
Detroit College of Medicine	(1908)	(1908)	Michigan
Detroit College of Medicine and Surgery	(1918)	(1918)	Michigan
Washington University School of Medicine	(1922)	(1922)	New Jersey
Albany Medical College	(1931) N B M Ex	(1931)	N B M Ex
Columbia University College of Phys and Surgs	(1930) N B M Ex	(1930)	N B M Ex
Ohio State University College of Medicine	(1930)	(1930)	Ohio
Western Reserve University School of Medicine	(1928)	(1928)	Ohio
Jefferson Medical College of Philadelphia	(1920) 2	(1920)	Puerto Rico
Meharry Medical College	(1931)	(1931)	Tennessee
Vanderbilt University School of Medicine	(1929)	(1929)	Tennessee
Medical College of Virginia	(1922)	(1922)	Virginia
University of Virginia Department of Med	(1925)	(1930)	Virginia
University of Toronto Faculty of Medicine	(1925)	(1925)	Ohio
Helsingfors Univ Medicinska Fakulteten Finland	(1903)	(1903)	Michigan
Odessa State Medical Institute Russia	(1922)*	(1922)*	New Jersey
Universidad Central de España Facultad de Medicina Madrid	(1927)	(1927)	Illinois
Osteopaths			Illinois 2 New Jersey 3

* Verification of graduation in process

Colorado October Report

Dr William Whitridge Williams, secretary, Colorado State Board of Medical Examiners, reports the written examination held in Denver, Oct 4, 1932 The examination covered 8 subjects and included 80 questions An average of 75 per cent was required to pass Eleven candidates were examined, 9 of whom passed and 2 failed Nine physicians were licensed by endorsement The following colleges were represented

College	PASSED	Year Grad	Per Cent
University of Colorado School of Medicine	(1931) 89	89	91.1
Rush Medical College	(1932)	(1932)	86.6
Harvard University Medical School	(1932)	(1932)	83.7
McGill University Faculty of Medicine	(1915)	(1915)	91.6
Osteopaths	75	185, 85, 85	

Osteopaths		FAILED	Per Cent
			67 1, 72 8
College	LICENSED BY ENDORSEMENT	Year Grad	Endorsement of
College of Medical Evangelists	(1930),	(1932)	N B M Ex.
University of Colorado School of Medicine	(1930),	(1930)	N B M Ex.
Howard University College of Medicine	(1926)	(1926)	Ohio
Rush Medical College	(1921)	(1921)	Illinois
University of Kansas School of Medicine	(1907)	(1907)	Kansas
University of Nebraska College of Medicine	(1923),	(1925)	Nebraska
University of Oklahoma School of Medicine	(1923),	(1925)	Oklahoma

Book Notices

The Art of Anesthesia By Paluel J. Flagg, M.D., Visiting Anesthetist to Manhattan Eye and Ear Hospital. Fifth edition. Cloth. Price \$5. Pp. 416, with 149 illustrations. Philadelphia & London: I. B. Lippincott Company, 1932.

In the preface, the author gives recognition to the fact that the art of anesthesia is acquired by becoming familiar with the laws that govern the administration of anesthesia and by developing the ability to correlate these laws. Although a knowledge of the laws is essential, this knowledge is superseded by the ability to apply them properly. He points out that this controlling element is what constitutes the essence of the art, and that the conduct of a thousand anesthetics, instead of leading to crudeness in technic, should make one a thousand times more careful. Although he recommends that the anesthetist know the science of anesthesia, he apparently wishes in this book to consider principally the art. He also points out that ether is the best anesthetic agent available for routine use. He recommends prudence in the approach to risks, temperate enthusiasm for untried agents, and steadfastness in doing what is right in spite of opposition or reward. In the period of sixteen years since the publication of the first edition of this work, the author has not found it necessary to make changes in what he thought at that time were fundamentals in anesthesia. He has found it necessary to include only new developments. He includes a brief historical sketch of anesthesia in ancient times and presents photostatic copies of interesting documents concerning Crawford W. Long's use of ether, and references to the early use of chloroform, nitrous oxide, ethyl chloride, cocaine and procaine. An outline is presented of the degrees of general anesthesia, which is referred to in various places in the text. The remainder of the book is divided into two parts. Part I deals with general, local and spinal anesthetic agents and methods. In part II are considered the remaining factors in the administration of anesthetics.

In part I, chapter 1, the author writes of general anesthesia as the first and most important type of anesthesia. He writes masterfully and explains the proper attitude toward general anesthesia. In chapter 2 he considers the stages of anesthesia: induction, maintenance and recovery, under induction he considers excitement, rigidity and relaxation. He takes up the causes and the control of each of these stages, dealing especially with difficulties and how they may be overcome. He considers various postures and their effect on respiration and relaxation. He quotes from Connell in his explanation of the percentage, or vapor tension, of ether in the air, in the lung and in the blood during various stages and degrees of anesthesia. In chapter 3, the signs of anesthesia are considered under the five headings of respiration, color, musculature, eye and pulse. The author also reviews the various methods of artificial respiration. Chapter 4 consists of general considerations of ether anesthesia, for example, the best type of ether mask, convenient methods of handling the anesthetic, the closed method, and various types of apparatus for use in application of closed methods by both oral and nasal methods. He gives attention also to intrapharyngeal and intratracheal methods. He mentions the use of ether by rectum but is not enthusiastic about the method. Intravenous ether anesthesia is mentioned but not recommended. Chapter 5 is on ethyl chloride, which is considered briefly. Chapter 6 is devoted to chloroform, which is discussed in some detail. The author's preference, however, if chloroform is to be used, is for the C-E mixture consisting of ether three parts and chloroform two parts at the beginning of the administra-

tion, pure ether is added to the mixture as anesthesia progresses, and the content of chloroform becomes very small. The author considers this mixture safer than chloroform alone, although he gives as his reason that the addition of ether to chloroform reduces the likelihood of circulatory depression. Chapter 7 is on nitrous oxide, which is treated at length. The relevant physics and chemistry are presented, and convenient appliances that the author or others have devised for the use of this agent are explained. Chapter 8 is on nitrous oxide and oxygen, which is briefly discussed. Chapter 9 is on nitrous oxide, oxygen and ether, which appears to be a favorite combination of the author. He shows pictures of several pieces of apparatus for the use of these agents and considers the difficulties encountered in their administration and the means of obtaining good results. Chapter 10 is on ethylene and is brief, since the problems involved in the use of this agent are similar to those encountered in the use of nitrous oxide. In chapter 11 is considered local anesthesia by freezing, pressure, and intravenous injections of procaine hydrochloride. In chapter 12 is taken up local anesthesia with procaine hydrochloride for surface, infiltration and regional anesthesia. The subject is covered in five and a half pages. Chapter 13 includes general considerations of spinal anesthesia, and in chapter 14 is taken up briefly the administration of spinal anesthetics.

Part II, chapter 15, includes preliminary medication, drugs, dosage and the time of administration. Chapter 16 is devoted to the postoperative treatment of the patient, the nurse's function before and during the anesthesia, and the treatment of various conditions, such as protracted unconsciousness, and circulatory shock after anesthesia and operation. Chapter 17 presents an excellent discussion of carbon dioxide, especially from the standpoint of rebreathing. Chapter 18 is concerned with emergency anesthesia, and several ingenious devices are suggested which may be used under circumstances in which little is available to work with. Chapter 19 is concerned with anesthetists' records, and chapter 20 deals with various types of aspirators. In chapter 21 the author bares his soul and expresses the point of view of the patient in a most impressive way, this is the chapter the anesthetist should read if he reads any part of this book. Chapter 22 is given over to the selection of the anesthetic for patients of various ages and for various types of operations, for labor, and in the presence of status lymphaticus. In this chapter reference is made to synergistic anesthesia. In chapter 23 is taken up intratracheal anesthesia, with the author's well known contribution to improvement of this technic. Chapter 24 deals with the various methods of artificial respiration and includes several reports of cases which indicate the value of the author's method. In chapter 25 is taken up basal anesthetics, including the barbiturates, especially sodium amylal and tribrom-ethanol. The author is not inclined to advocate the routine use of basal anesthetics at this time.

Essentials of Pediatric Nursing By Ruth Allee Perkins R.N., B.S. Assistant Director of Nursing, Ohio State University School for Nurses. Second edition. Cloth. Price \$2.75. Pp. 407, with 61 illustrations. Philadelphia: F. A. Davis Company, 1932.

The enthusiastic reception accorded this concise treatise on pediatric nursing has warranted an augmented and enlarged edition. The original text has been added to, especially in the chapters on breast feeding, nutrition, hygiene, and normal growth and development. A section has been added on the pediatric aspects of nursing in communicable diseases, and a chapter on the nursing of children requiring orthopedic care. An excellent teaching outline is appended, which may be used as a guide for nursing courses in pediatric procedure. The material is accurate, concise and practical. For the student nurse and the graduate who intends to follow pediatric nursing as her vocation, the theoretical contents are adequate, and the practical instruction is excellent. The exact and detailed descriptions of nursing procedure contained in this volume must be the most essential part of the education of any nurse whose vocation is to be the care of sick children. She must know how to carry out the special procedures used in pediatric nursing, and this information is concisely placed in her hands. For those nurses whose profession it may be to teach pediatric nursing procedure, this volume will prove a valuable guide and aid. Adequate references are included at the end of each chapter, and the volume is well illustrated.

The Last Adam By James Gould Cozzens Cloth Price \$2 50
Pp 301 New York Harcourt Brace & Co 1933

Few American novels of recent years have shown such an actual comprehension of the life of a certain type of country doctor as has this recent selection of the Book-of-the-Month Club. The book is written almost photographically with a paucity of diction that gives the reader a sense of both suspense and action. The central character is a general practitioner in a small community, who is at the same time health officer. He is confronted with an epidemic of typhoid fever which arouses great excitement in the community and an attempt to drive the doctor out of the place that he has so long held among the people. His friends rally about him. Through it all he conducts himself with a humanness that is the particular mark of physicians of this type regardless of their competence or incompetence scientifically. In one paragraph the old doctor contrasts the medicine of the past with the medicine of today.

The real trouble was I forgot to put on a big show entitled 'The Wonders of Science.' He lifted the glass and drank thoughtfully. Funny thing Janet to see the change there. When I was first practicing they kind of thought a doctor was a medicine man. They didn't know what it was all about. He was sort of dabbling in the occult and anything he did was all right with them. They don't know any more now but they've been reading the papers and they want some of that not God knows what out of a bottle. You ought to see Verney's place. Nurses sitting around in uniform making urinalyses. Half a ton of fluoroscopic machines. Verney telling all the women to get undressed for a thorough examination. When he's through he has a four page record. Nine cases out of ten he doesn't know a thing he couldn't have found out by feeling a pulse and asking a couple of questions. Talk about the occult! But everybody thinks when he's written down so much he must know something and the women are purring like cats wondering if he didn't think they looked pretty good in the raw. That's giving them proper attention. People like the Bannings who can pay for it, are going to have proper attention or know why not.

Éléments de technique physiologique Par Jean Gautrelet directeur du laboratoire de biologie expérimentale à l'école pratique des hautes études. Paper Price 60 francs Pp 420 with 287 illustrations Paris Masson & Cie 1932

This admirable compilation of physiologic procedures should interest alike the student and the experimenter. For each experiment the author indicates the materials and instruments required and the exact procedure to be followed, and gives useful bibliographic references together with a brief discussion of the principles involved. The three main divisions deal with experiments on the dog, rabbit and frog (with a few on the cat, pigeon, turtle and quail), and in each part the author takes up, besides the usual experimental procedures on circulation, respiration, digestion and metabolism, such subjects as the measurement of chronaxia, the methods of extirpation and of perfusion of organs (isolated and in situ), and the preparation of various fistulas. The book deserves a prominent place in the library of every physiologic or pharmacologic laboratory, and the author is to be congratulated on having produced a useful and usable manual.

A Guide to Human Parasitology for Medical Practitioners By D B Blacklock MD D IH D TM Professor of Parasitology Liverpool School of Tropical Medicine the University of Liverpool and T Southwell D Sc PhD MRCS Lecturer in Helminthology School of Tropical Medicine Liverpool Cloth Price \$4 Pp 271 with 124 illustrations Baltimore Williams & Wilkins Company 1932

The authors of this work have had wide experience in the field of parasitology. The book has a twofold purpose, as a practitioners guide and as a textbook for students in tropical medicine and hygiene and in public health. The text is strictly limited to the pathogenic parasites of man and the structural features utilized are those most helpful in the immediate diagnosis of the species under discussion. This elimination of detail and the abundant diagrammatic illustrations result in a simplification and increase in usability of the book for the physician who is called on to diagnose any of the well known human animal parasites. For the less common or exceptional ones he must turn to a more encyclopedic parasitology such as that of Brumpt or a helminthology such as that of Faust. The authors have provided useful keys for identification and have presented the life cycles in the form of a vertical series of illustrations with suitable explanations which reveal at a glance the sequence of stages and the agencies and vectors involved in their spread and maintenance. There are also useful tables showing the approximate sizes of the nematodes of man together with the diagnostic features of the helminth ova and

larval stages. A tabular summary is given of the life history and distribution of the filarias of man, of the infectivity of the eggs and larvae of worms found in man, and of the geographic distribution of human helminths. There is a list of parasites whose infective stages are carried by water, in foods other than flesh, and in meat, fish, crustaceans and liver. There is also a list of parasitic diseases for which arthropods serve as vehicles or vectors of the causative spirochetes, protozoans or helminths, of fluke diseases for which snails are the vehicle, and of those for which fingers contaminated with soil or feces are the vehicles. Tables are given which show the location of infective stages of parasites and the modes of infection for each, the tissues and organs invaded by the parasites in man, the diagnostic features of the parasites, and drugs, dosages and treatments. This is a practitioner's book *par excellence*.

The Psycho Analysis of Children By Melanie Klein Authorized translation by Allx Strachey Cloth Price \$5 18s Pp 393 New York W W Norton & Company Inc 1932

Tracing back a neurosis to its origin in the individual's life history, one invariably finds its deepest roots in conflicts that arise in the first years of childhood. Melanie Klein is the first analyst to follow out in practice the procedures suggested by this observation—to deal with these conflicts at the time they arise. Applying analysis to young children means of course a modification of the technique used in the analysis of adults. One cannot ask a child 3 years old to lie down on a couch and say everything that passes through its mind. Instead, Mrs Klein encourages the child to express its emotions in playing and then interprets to it the desires, impulses and fear reactions, which reveal themselves in the play in a more or less disguised form. She thus uncovers the particular fear situation with which the child could not cope and diminishes this fear, whereupon the neurotic reactions—compulsive ideas, phobias and the like—disappear. The author presents her experiences in the present volume, illustrating the technical procedure with transparent case material and showing deep insight in the early development of the instinctive side of life, particularly the amazing amount of fear and aggression. The second part of the book, which contains the theoretical conclusions, is on a somewhat lower scientific level for two reasons: infantile fantasies are uncritically regarded as being the dynamic source of certain developments, and extremely hypothetical assumptions of Freud, as that of the death instinct, are uncritically used as "explanations" for early destructive impulses.

Zur Klinik und Analyse der psychomotorischen Störung Von Dr Otto Kauders Assistent der Universitätsklinik in Wien [Aus der psychiatrischen Universitätsklinik in Wien Vorstand Prof Dr Otto Pötzl] Sonderausgabe von Heft 64 der 'Abhandlungen aus der Neurologie Psychiatrie Psychologie und ihren Grenzgebieten' Paper Price 12 60 marks Pp 132 Berlin S Karger 1931

This monograph is an excellent phenomenologic presentation by Kauders, associate of the psychiatric clinic of the University of Vienna, who is well known in Europe as a representative of the Schilder-Goldstein school of neuropsychiatry, which emphasizes the pluralistic rather than the "either or" approach to psychiatric and neurologic phenomena. The author brings up cases of organic psychoses such as encephalitis and delirium tremens and shows how inadequate a simple neurologic approach to these problems is and how closely the psychiatric material is interwoven with the various neurologic manifestations. The book is clearly written and the various points are emphasized with force and intelligence. The point of view is probably more novel in Europe than in America, as Meyer and his students have emphasized this idea for many years.

Handbuch der Geisteskrankheiten Herausgegeben von Oswald Bumke Band IV Spezieller Teil Teil 5 Die Schizophrenie Redigiert und mit einem Vorwort versehen von K. Wilmanns Paper Price 86 marks Pp 783 with 99 illustrations Berlin Julius Springer 1932

In this section of Bumke's psychiatry the subject of schizophrenia is dealt with in the same adequate manner that has characterized the previous volumes. As each part of this series is published it looms up more and more as the most adequate writing concerning psychiatry. So many details are given in each work that a satisfactory review cannot be given. This handbook should certainly be in every medical library and in the personal library of every psychiatrist.

Medicolegal

Qualifications of Medical Expert as Affected by Locale of Practice

(Geraty v Kaufman (Conn), 162 A 33)

The defendant-physician was sued for damages for alleged negligence in treating a spiral fracture of both bones of the plaintiff's left leg. The defendant, the plaintiff claimed, applied a circular plaster cast, and, even in the face of indications of impaired circulation in the leg, did not split the cast until two days after it had been applied and did not remove it until six days after application. To prove that this treatment was improper the trial court admitted, over the defendant's objections, the testimony of several medical experts who practiced in New Haven, Connecticut, but not in New London, the community in which the plaintiff was treated by the defendant. These medical experts testified that the standard practice in the treatment of such fractures and the application of necessary casts was the same throughout the state and that that practice required the cast to be split within a few hours after application, and, if left solid for a longer period, to be split on the first sign of impairment of circulation, so as to relieve the pressure. From a judgment in favor of the plaintiff, the defendant appealed to the Supreme Court of Errors of Connecticut.

The defendant contended that the medical experts should have been permitted to testify with respect to the standard of practice only in the community where he practiced, New London. The test in this state, said the Supreme Court of Errors, in determining what constitutes reasonable care, skill and diligence, is the care, skill and diligence which physicians in the same general neighborhood and in the same general line of practice ordinarily have and exercise in like cases. The rule does not restrict the territorial limitation to the confines of the town or city in which the treatment was rendered, and under modern conditions there is perhaps less reason than formerly for such restriction. There is now no lack of opportunity for the physicians in smaller communities to keep abreast of the advances made in their profession and to be familiar with the latest methods and practices adopted. It is not unreasonable to require that they have and exercise the skill of physicians in similar localities in the same general neighborhood. It may not be sufficient if they exercise only that degree of skill possessed by other practitioners in the community in which they practice.

The question involved in this case, continued the court, is the slightly different one of whether or not a physician, in order to qualify and testify as an expert, must be familiar with the practice in the particular community in which the treatment was given, or if it is sufficient if he is acquainted with the general practice in the state. If a physician may be expected to be familiar with the methods and practices of physicians in similar localities beyond the limits of his own community, a physician may properly be permitted to testify as to the general practice in the state in the application and treatment of plaster casts. It may fairly be assumed that the standard practice in such a matter would not materially differ in the various hospitals in the state. There is no unfairness to the defendant in admitting such evidence. Indeed, a case might well arise in which it would be a practical impossibility for the plaintiff to procure expert witnesses who could testify that they know what the practice was as to the particular operation in a particular community. The judgment in favor of the plaintiff was accordingly affirmed.

Hospitals Liability for Malpractice After Person Responsible for Original Injury Has Been Released from Liability—The plaintiff was injured in an automobile accident and was taken to the defendant-hospital for treatment. Later he sued the hospital for damages, claiming that through the negligence of certain of its employees his injuries were aggravated. The hospital contended that he was barred from bringing the action because, for a consideration, he had released the person responsible for the automobile accident from all liability. A person, said the Supreme Court of Florida, division B, who has negligently injured another is liable in damages for any aggravation of those injuries due to the malpractice of a hospital or physician, if the injured person has used care in selecting the hospital or physician

The hospital or physician aggravating the original injury is jointly and severally liable with the original wrongdoer. A release from liability to one of the parties jointly or severally liable operates as a release to all other parties liable. Therefore, the release to the original wrongdoer operated to release the hospital from liability.—*Fenstone v Allison Hospital, Inc (Fla)*, 143 So 251

Society Proceedings

COMING MEETINGS

Alabama, Medical Association of the State of, Montgomery, April 18 21 Dr D L Cannon, 519 Dexter Avenue, Montgomery, Secretary
American Association for Thoracic Surgery, Washington, D C, May 1 3 Dr Duff S Allen, 3720 Washington Boulevard, St Louis, Secretary
American Association of Anatomists, Cincinnati, April 13 15 Dr George W Corner, University of Rochester School of Medicine, Rochester, N Y, Secretary
American Association of Genito-Urinary Surgeons Washington D C, May 8 10 Dr Henry L Sanford, 1621 Euclid Avenue, Cleveland, Secretary
American Association of Pathologists and Bacteriologists, Washington, D C, May 2 3 Dr Howard T Karsner, 2085 Adelbert Road, Cleveland, Secretary
American Bronchoscopic Society, Washington, D C, May 10 Dr Edwin McGinnis 104 South Michigan Boulevard, Chicago, Secretary
American Gastro-Enterological Association Washington, D C May 9 10 Dr John Bryant, 311 Beacon Street, Boston, Acting Secretary
American Gynecological Society, Washington, D C, May 8 10 Dr Otto H Schwarz, 630 South Kingshighway, St Louis, Secretary
American Laryngological Association, Washington D C May 9 10 Dr George M Coates, 1721 Pine Street, Philadelphia, Secretary
American Neurological Association, Washington, D C, May 9 11 Dr Henry A Riley, 117 East 72d Street, New York, Secretary
American Ophthalmological Society, Washington, D C, May 8 10 Dr J Milton Griscom, 2213 Walnut Street, Philadelphia, Secretary
American Orthopedic Association, Washington, D C, May 8 10 Dr DeForest P Willard 1916 Spruce Street, Philadelphia Secretary
American Otolological Society, Washington D C, May 8 9 Dr Thomas J Harris 104 East 40th Street, New York, Secretary
American Pediatric Society, Washington, D C, May 8 10 Dr Hugh McCulloch 325 North Euclid Avenue, St Louis, Secretary
American Physiological Society, Cincinnati, April 10-12 Dr Frank C Mann, Mayo Institute, Rochester, Minn, Secretary
American Society for Clinical Investigation, Washington, D C, May 8 Dr H L Blumgart, Beth Israel Hospital, Boston, Secretary
American Society for Experimental Pathology, Cincinnati, April 10 12 Dr C Phillip Miller, Jr, University of Chicago Department of Medicine, Chicago, Secretary
American Society for Pharmacology and Experimental Therapeutics, Cincinnati, April 10 Dr V E Henderson, Medical Building, University of Toronto, Toronto, Canada, Secretary
American Society of Biological Chemistry, Cincinnati, April 10 12 Dr Howard B Lewis, University of Michigan Medical School, Ann Arbor, Mich, Secretary
American Surgical Association, Washington, D C May 1 3 Dr Vernon C David, 59 East Madison Street, Chicago, Secretary
Arizona State Medical Association, Tucson, April 20 22 Dr D F Harbridge, 822 Professional Building, Phoenix, Secretary
Arkansas Medical Society, Hot Springs May 2-4 Dr William R Bathurst, 814 Boyle Building, Little Rock, Secretary
Association of American Physicians, Washington, D C, May 9 10 Dr James H Means, Massachusetts General Hospital, Boston, Secretary
California Medical Association, Del Monte, April 24 27 Dr Emma W Pope 450 Sutter Street, San Francisco, Secretary
Congress of Physicians and Surgeons of North America, Washington, D C, May 9 10 Dr John T King, Jr, 1210 Eutaw Place, Baltimore, Secretary
District of Columbia, Medical Society of the, Washington, May 3 Dr C B Conklin, 1718 M Street N W, Washington, Secretary
Federation of American Societies for Experimental Biology, Cincinnati, April 10 12 Dr C Phillip Miller, Jr, University of Chicago Department of Medicine, Chicago, Secretary
Georgia, Medical Association of, Macon, May 9 12 Dr Allen H Bunce, 139 Forrest Avenue, N E, Atlanta, Secretary
Harvey Cushing Society, Louisville Ky, April 13 14 Dr Tracy J Putnam, 818 Harrison Avenue, Boston, Secretary
Iowa State Medical Society, Des Moines May 10 12 Dr Robert L Parker, 3510 Sixth Avenue, Des Moines, Secretary
Kansas Medical Society, Lawrence, May 2 4 Dr J F Hassig, 804 Huron Building Kansas City, Secretary
Louisiana State Medical Society, Lake Charles, April 25 27 Dr P T Talbot, 1430 Tulane Avenue, New Orleans, Secretary
Maryland, Medical and Chirurgical Faculty of, Baltimore, April 25 26 Dr Walter Dent Wise, 1211 Cathedral Street, Baltimore, Secretary
Mississippi State Medical Association, Jackson, May 9 11 Dr T M Dye, Clarksdale, Secretary
Missouri State Medical Association, Kansas City May 1 4 Dr E J Goodwin, 634 North Grand Boulevard St Louis Secretary
New York Medical Society of the State of, New York, April 3 5 Dr Daniel S Dougherty, 2 East 103d Street, New York Secretary
North Carolina Medical Society of the State of, Raleigh, April 17 19 Dr L B McBrayer, Southern Pines, Secretary
Ohio State Medical Association, Akron, May 2 3 Mr Don K Martin, 131 East State Street Columbus Executive Secretary
South Carolina Medical Association, Spartanburg, April 18 19 Dr E A Hines, Seneca, Secretary
Tennessee State Medical Association, Nashville, April 11 13 Dr H H Shoulders, 706 Church Street, Nashville Secretary
Texas State Medical Association of Fort Worth May 8 11 Dr Holman Taylor, Medical Arts Building, Fort Worth Secretary
West Virginia State Medical Association, Charleston, May 8 10 Mr Joe W Savage, Professional Building, Charleston, Secretary

Current Medical Literature

AMERICAN

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Titles marked with an asterisk (*) are abstracted below.

American Journal of Ophthalmology, St. Louis

15 1117 1211 (Dec.) 1932

- *Treatment of Chronic Dacryocystitis and Lacrimonasal Fistulization. Author's Procedure. R. Argañaraz. Buenos Aires, Argentina.—p. 1117
- *Magnet Extraction from Vitreous. E. Stieren. Pittsburgh.—p. 1120
- First American Eye Journal and Its Editor. R. I. Lloyd. Brooklyn.—p. 1123
- *Papilledema and Intracranial Complications of Leukemia. E. Hill. Richmond, Va.—p. 1127
- Effects of Intense Light on Retina. Report of Bilateral Macular Burn. P. D. Berrisford. St. Paul.—p. 1133
- Practice of Ophthalmology. G. Frey. New York.—p. 1138
- Slit Lamp Ophthalmoscopy. Describing New Instrument. J. N. Evans. Brooklyn.—p. 1144
- Intracapsular Cataract Extraction by Vacuum Cup Method. Preliminary Report of Fourteen Cases. E. R. Crossley. Chicago.—p. 1147
- Present Status of Diathermy in Ophthalmology. G. H. Poos. St. Louis.—p. 1150
- Squamous Cell Epithelioma at Limbus. Case Report. G. Freiman. Brooklyn.—p. 1157

Treatment of Chronic Dacryocystitis—After enumerating the advantages and disadvantages of the various methods of treating chronic dacryocystitis, Argañaraz describes a method of lacrimonasal fistulization in which, after the sac has been opened through the lower canaliculus, a trocar with cannula is pushed into the nose through the thin bony wall, the cannula being kept in place until healing is complete. The cannula is composed of a small gold tube 2 mm in diameter by approximately 2 cm in length and is provided with numerous holes. The extremity of the trocar is introduced into the interior of the lacrimal sac through the incision made in its external wall, and the delicate bony lamina of the lacrimal groove is trephined. Little pressure is necessary to overcome the feeble resistance of the bony wall. The trocar must be directed downward and inward at an angle of approximately 45 degrees. The cannula exactly fits the extremity of the trocar and on withdrawal of the latter it is left in position. The cannula must be mobilized daily to favor the formation of a fistula communicating between the lacrimal sac and the nasal cavity. This is indispensable for the success of the operation. Postoperative inflammatory reaction is rare, it is not necessary to apply any bandage, and the dacryocystitis and lacrimation from which the patient has been suffering stop immediately, provided the operation has been well performed and the cannula placed in position through the lacrimal sac.

Magnet Extraction from Vitreous—Stieren believes that in magnet extraction from the vitreous one should give the patient on admission to the hospital a full immunizing dose of tetanus antitoxin not only for its specific action but also as a foreign protein to insure systemic support for the ocular injury. The position of the foreign body being definitely known by roentgen localization a conjunctival flap is dissected as near the site of the foreign body as possible. This flap must contain all the subconjunctival tissue; the sclera should be bared. A double armed suture is passed through each end of the flap, entering from below at one end and from above at the other. This leaves a long stitch on the outside. This suture is used as a retractor so that the flap can be pulled well out of the way of the field. The knife used to incise the sclera must not be plunged into the vitreous but should penetrate only deep enough to cut through the sclera, choroid and retina. The author prefers a crucial incision as it facilitates the delivery of the foreign body adhering to the magnet. After using many kinds of knives and keratomes he finally devised a keratome that penetrates little more than 2 mm and has a double edge and an extremely sharp point. One uses only the conc tip of the hand magnet applying it over the site of

the foreign body, then making contact, and slowly moving the magnet toward the incision. One can repeat this a number of times if not successful in getting the foreign body on first contact, changing the angle of direction each time. If these maneuvers do not succeed in bringing the foreign body into the incision, one lightly presses the cone tip into the wound and makes contact, again changing the direction of the magnetic pull. The important thing is to disturb the vitreous as little as possible. Nor should a live magnet ever be approached to an eye containing a magnetic foreign body, contact should be made only when the stage is set or else the steel particle may be drawn about in the interior of the eye and cause untold damage. After the delivery of the foreign body, pure phenol is applied to the scleral incision and the double armed suture is passed beneath the opposite conjunctiva and tied on top, thus completing the toilet of the wound. From 1 to 2 cc of physiologic solution of sodium chloride is injected subconjunctivally, but not near the scleral incision, and the eye is closed. The author has rarely had detachment of the retina occur. This is due to the fact that the unwise practice of plunging a cataract knife or inserting magnet tips into the vitreous results in the formation of vitreous bands, which draw on the retina by contraction and bring about detachment in this manner. If the vitreous is examined with the slit lamp the path of a foreign body in its transit to the posterior part of the globe can be seen. It is logical to infer that drawing the foreign body again to the anterior segment of the eye with a strong magnet will create a parallel path and again injure the vitreous with the possible formation of a band which by contraction could readily detach the retina. The use of phenol in the scleral wound is of value in creating a local plastic inflammation which attaches the choroid and retina to the sclera. The best results are obtained when the foreign body has been in the eye for a short period of time.

Papilledema and Complications of Leukemia—According to Hill, the leukemias are both localized and generalized processes, attacking the eye and the brain. These processes simulate tumors and exhibit what may be termed a "malignant" tendency. As such they reproduce the picture of both hemorrhage and tumor in the cranial cavity, increasing intracranial pressure and causing papilledema. Anatomic studies of optic nerve heads and retinas in these cases regularly support the mechanical theory of choked disk and tend to disprove the inflammatory theory. They suggest the possibility that local alterations due to abnormal cellular contents in the central retinal vessels may bring about papilledema without the cooperation of an engorged vaginal sheath, in other words, the possibility of the clinical picture of papilledema without increased intracranial pressure. This hypothesis may throw light on some of the more unusual cases recorded as choked disk accompanying quite localized inflammatory processes. Even so, the alterations in the disks are due to edema and not to inflammation.

American Journal of Pathology, Boston

8 639 811 (Nov.) 1932

- *Glomerular Lesions Associated with Endocarditis. E. T. Bell. Minneapolis.—p. 639
- *Glomerular Changes in Kidneys of Rabbits and Monkeys Induced by Uranium Nitrate, Mercuric Chloride and Potassium Bichromate. W. C. Hunter and J. M. Roberts. Portland, Ore.—p. 665
- Histologic Studies of Hypersensitive Reactions. L. Dienes and T. B. Mallory. Boston.—p. 689
- Histochemical Study by Micro-Incineration of Inclusion Body of Fowl Pox. W. B. C. Danks. St. Louis.—p. 711
- Medionecrosis Aortae Idiopathica Cystica. A. R. Moritz, Cleveland.—p. 717
- Mesenterium Commune with Intestinal Obstruction. A. R. Moritz. Cleveland.—p. 735
- Fibrocystic Disease of Bones Associated with Tumor of Parathyroid Gland. Report of Case. R. S. Rosedale. Buffalo.—p. 745
- *Study of Pathogenicity of Bacillus of Calmette-Guérin (B.C.G.). W. H. Feldman. Rochester, Minn.—p. 755
- Two Simple Methods for Silver Impregnation of Nerve Fibers in Paraffin Sections of Central and Peripheral Nervous System. N. C. Foot, Cincinnati.—p. 769
- Effect of Different Types of Fixation on Silver Impregnation of Paraffin Sections of Peripheral Nerve. N. C. Foot. Cincinnati.—p. 777
- Silver Impregnation of Glia and Nerve Fibers in Paraffin Sections After Formalin Fixation. Helenor Campbell Wilder. Washington, D. C.—p. 785

Glomerular Lesions Associated with Endocarditis—Bell found two forms of glomerulitis, namely, diffuse and embolic, in association with endocarditis. Diffuse glomerulitis

was found with the various types of endocarditis as follows: acute rheumatic, 22.2 per cent, acute primary bacterial, 28.6 per cent, subacute bacterial, 64.8 per cent, and secondary acute, 33.3 per cent. It is characterized by an increase in the number and size of the endothelial cells and often by thickening of the capillary basement membrane. The extent of capillary obstruction is usually much less than in clinical acute glomerulonephritis, but in seven instances of subacute endocarditis glomerulitis had reached the clinical level. Diffuse glomerulitis bears some relation to the intensity and duration of septicemia. Embolic, or focal, glomerulitis was found in the different forms of endocarditis as follows: acute rheumatic, 2.9 per cent, acute primary bacterial, 7.1 per cent, subacute, 52.8 per cent, and secondary acute, 5.8 per cent. In one instance there was no endocarditis. Two distinct types of embolic lesions occur—the fresh hyaline and the fibrous. The fresh hyaline lesion in its simplest form is a capillary thrombosis and all the smaller lesions are readily recognized as such. The larger lesions are composed of many thrombosed capillaries, which may be identified until the capillary walls have undergone necrosis. The hyaline lesion is not an infarct but a thrombosis and necrosis of capillaries resulting from the lodgment of bacteria. The necrotic portion of the glomerulus disintegrates and disappears. The fibrous lesion is a reaction characterized by a marked growth of the basement membranes of the capillaries. The thickened membranes obliterate the capillaries and give the glomerulus a fibrous structure. The fibers are formed entirely from basement membranes; there is no invasion by fibroblasts from without. The fibrous lesions, like the fresh hyaline, may involve one or more lobules or the entire glomerulus. It develops independently of the fresh hyaline lesions. In subacute bacterial endocarditis there were fifteen instances of severe renal insufficiency, of which five were due to embolic glomerulonephritis, seven to acute and three to chronic glomerulonephritis. The fresh, hyaline, embolic lesions develop earlier than the fibrous and may be found at any time during the course of the disease. The frequent absence of embolic lesions in typical clinical examples of subacute bacterial endocarditis has not been explained. Diffuse glomerulitis is frequently found in association with embolic lesions. Epithelial crescents frequently cause atrophy of the glomerular tufts by compression. Fibers form between the epithelial cells and convert the crescent into a dense fibrous structure. These fibers are of epithelial origin. In the glomeruli, fibers which later give the staining reactions of collagen are formed from three distinct sources—intracapillary fibers from the endothelial cells, fibers formed from thickened capillary basement membranes, and fibers formed by the epithelial cells of the crescents.

Glomerular Changes in Kidneys—By a special staining method (azocarmine) Hunter and Roberts were able to demonstrate distinct changes, interpreted as evidences of injury, in the glomerular basement membrane of kidneys damaged by uranium nitrate, mercuric chloride and potassium bichromate. The lesions in the basement membrane are purely degenerative in character, present in both acute and chronic stages of chemical nephropathies, and appear to be permanent. The renal glomerulus is more vulnerable to poisons than the tubules and fails to develop the same degree of increased resistance toward them. The authors advance the opinion that alterations in the basement membrane of the type described may play an important part in the renal disturbances induced by certain metallic salts. Fibrosis and connective tissue hyperplasia are not responsible for the appearance of the glomeruli in chronic uranium and sublimate nephropathies. The existence of other long recognized glomerular changes demonstrable with ordinary stains is affirmed. Uranium nitrate and mercuric chloride produce more histologic alterations in the glomeruli than potassium bichromate.

Study of Pathogenicity of Bacillus of Calmette-Guérin—Using a strain of BCG obtained from Calmette of the Pasteur Institute, Feldman made a deliberate attempt to increase its pathogenicity by growing subcultures of the organism on a glycerinated egg medium. Transfers were made every thirty days. From each succeeding subculture, four guinea-pigs were given injections—two intracerebrally, one subcutaneously and one intraperitoneally. The report deals with data obtained after subcultures of the organism had been grown on glycerinated egg medium for fifteen generations. Of a total of fifty-eight

guinea-pigs inoculated, lesions histologically indistinguishable from those of genuine tuberculosis occurred in the tissues of eleven, and cultures of acid-fast bacilli were obtained from each. Although the majority of the lesions occurred in animals that had been given intracerebral injections, one animal that was given an intraperitoneal injection and another given a subcutaneous injection died with lesions of a tuberculous nature. So far, attempts have failed to promote a succession of tuberculous lesions by the reinoculation into guinea-pigs of infective material from lesions. The particular strain of BCG studied is not devoid of pathogenicity for guinea-pigs, and the assertion that the organism is innocuous cannot be accepted without reservations. Subculturing the organism on glycerinated egg medium at monthly intervals for a period of fifteen generations did not markedly enhance its virulence.

American Journal of Psychiatry, Baltimore

12 415 652 (Nov.) 1932

- *Mental Phenomena Observed in Cases of Brain Tumor G. W. Henry, White Plains, N. Y.—p. 415
- Erethizaphrenia and Kolyphrenia: Physiologic Conception of Psychologic Types and Their Relation to Psychopathology J. R. Hunt, New York—p. 475
- The Pilgrim State Hospital F. W. Parsons, Albany, N. Y.—p. 493
- Deletion of Function and Adaptive Compromise D. Gregg, Wellesley, Mass.—p. 511
- Age Incidence of Paresis M. C. Petersen, St. Peter, Minn.—p. 521
- Potentiality for Change in Personality E. Kahn and L. H. Cohen, Boston—p. 523
- Diathermy in Treatment of General Paresis H. A. McKay, K. G. Gray and W. C. Winans, Mimico, Ont., Canada—p. 531
- Psychiatry and the Criminal F. H. Leavitt, Philadelphia—p. 541
- Measurement of Mental Deterioration in Dementia Praecox R. Schwarz, Dannemora, N. Y.—p. 555

Mental Phenomena Observed in Brain Tumor—Of more than 1,000 verified cases of brain tumor gathered chiefly from the literature, Henry made a digest for the purpose of determining to what extent the psychiatrist may contribute to the diagnosis and the localization. He states that neoplasms in the brain according to their location give rise to mental phenomena by which the evolution of the cephalic portion of the nervous system may be traced. In the pontomedullary region, mental phenomena are absent except for the late effects of intracranial hypertension. At times there is a disturbance of tactile sensibility, i. e., with one of the most primitive means of contact with the external world. This disturbance is manifested by the appearance of tactile hallucinations. Neoplasms affecting the base of the brain are manifested by disturbances in growth as well as by peculiar and exquisite pain reactions. They give rise to automatic laughing and crying and to crude motor phenomena in the form of rigidity, tremor, choreo-athetoid movements, assumption of fixed postures, somnolence, stupor, inability to react to the presence of food in the mouth, drooling, automatic resistiveness, mutism and in general to the manifestations of parkinsonism or catatonia. Occasionally the howling or other cries reminiscent of a lower mammalian stage in evolution are observed. Cerebellar neoplasms give rise to disorders in locomotion and the maintenance of posture and to distant pressure effects. The associated mental phenomena are about as crude as those of the pontomedullary region. The crude visual illusory and hallucinatory phenomena observed with lesions in the occipital lobes may be elicited directly through the growth of neoplasms or indirectly through increase of sub-tentorial pressure. These phenomena are less commonly observed because tumors of the occipital lobes are much less frequent. As the frontal lobes are approached, the mental phenomena observed are increasingly complex and highly elaborated. Neoplasms in the region of the fissure of Rolando disturb functions peculiar to human beings, such as reading, writing and speech. On the other hand, lesions in the temporo-sphenoidal lobes, i. e., those affecting the archipallium, give rise to gross gustatory and olfactory disorders. In other words, the response is a disturbance of primitive functions and of those senses on which lower animals depend in their external contacts. Neoplasms of the temporal lobes may be accompanied by both auditory and visual hallucinations. These are usually highly organized and resemble the visions and voices characteristic of the functional psychoses. In general it appears that lesions of the temporal lobes are prone to give rise to hallucinatory phenomena. Thus far in the progression toward the frontal region, visual hallucinations have been more com-

mon When the frontal lobes are affected, however, highly organized auditory hallucinations are more frequently observed. In this respect there is a closer approximation to the psychogenic psychoses. Neoplasms in the frontal lobes also produce gross personality changes and loss of the refinements in social contact that are characteristic of most highly civilized people. Destructive lesions cause a prompt regression to the mode of living characteristic of intracranial hypertension, but when this is the sole factor the mental phenomena tend to fluctuate with the variations in intracranial pressure. Certain mental phenomena accompany the growth of brain tumors and often precede the appearance of neurologic changes. It is essential that expert psychiatric observations be made in all cases, and in general these observations are equally important to those of the neurologist in arriving at the diagnosis and the localization of brain tumor.

Archives of Otolaryngology, Chicago

16:767 904 (Dec.) 1932

- Clinical Experiences in Surgical Treatment of Facial Palsy by Autoplastic Nerve Grafts. Ballance. New York. —p 767
- Congenital Atresia of Anterior Nares. Report of Two Cases in Sisters. Annette C. Washburne. Madison, Wis.—p 789
- Laryngostroboscopy in Practice of Otolaryngology. L. A. Kallen. New York.—p 791
- *Allergy and Cytologic Examination of Nasal Smears. M. C. Johnson and D. W. Goldstein. Fort Smith, Ark.—p 808
- Constitutional Deafness. M. J. Gottlieb. New York.—p 814
- *Association of Acute Sinusitis and Acute Otitis Media in Infants and in Children. E. H. Campbell. Philadelphia.—p 829
- Abscess of Pterygomaxillary Fossa Complicating Otitic Infections. Review of Literature and Report of Case. C. C. Grant. Cedar Falls, Iowa.—p 845
- Early Diagnosis in Meningitis. Chemical Studies of Spinal Fluid. S. J. Kopetzky and Ella Fishberg. New York.—p 851

Allergy and Cytologic Examination of Nasal Smears—Johnson and Goldstein's series of thirty-four cases is composed of patients who consulted a rhinologist because of symptoms referable to the nose or eyes and who from the history or examination, including the cytologic study of nasal smears, were suspected of being allergic. The ages of the patients in the series varied from 2 to 55 years. The ratio between male and female patients was about equal. The inhalants were the most common offenders. No one food stood out conspicuously in the results of testing. The most frequent symptom was obstruction to nasal breathing, due to nasal congestion, accompanied by a watery nasal discharge. Sneezing was the next in frequency. Seasonal variation was found in six cases. In the remaining cases, the symptoms were referable to the nose the year round. Exacerbations on exposure to dust were marked. Seven patients had other conditions suggestive of an allergic cause, such as eczema, asthma, migraine or spastic colitis. Contrary to the statement usually made that allergic patients show a pale and waterlogged nasal mucosa, the authors found that the color varied from a pale pink to a deeply injected red. In cases in which the symptoms had been present over a period of months, the picture of the pale and boggy mucosa was found. Polypi were found in five cases. In only a few cases was a dark frontal or maxillary sinus found on transillumination. The percentage of eosinophils found on examination of the slides varied from 5 to 100. The authors found that the count often varied within twenty-four hours. This may be due to an actual difference in the percentage of the various types of cells present or to the fact that only 100 cells were counted. The cells tend to lie in groups of from three to ten or more, and the field examined may not be a true index of the total number present.

Acute Sinusitis and Acute Otitis Media—Campbell states that a report of a rather small number of cases, in which acute sinusitis was found in practically 100 per cent of the cases of acute otitis media does not necessarily prove that all cases of otitis are secondary to sinusitis, but it at least suggests the common association of the two conditions. Furthermore, it suggests that in cases of otitis media the treatment should not be confined to the ear but should be largely directed to the elimination of the sinus infection. This can probably be done best by the frequent and thorough removal of the secretions, little stress being placed on the use of antiseptics. The results of this study further emphasize the importance of considering more seriously infection of the sinuses

as a contributing factor in gastro-intestinal conditions as well as in many other disorders of infancy. It is to be hoped that, with the realization of the frequency of sinus infection in infants and children and the direct and remote complications which ensue therefrom, more adequate prophylactic and therapeutic measures may be discovered to combat such conditions.

Colorado Medicine, Denver

29 457 528 (Dec.) 1932

- Causes of Changed Mortality Rates. J. B. Crouch. Colorado Springs.—p 460
- The Voice in Health and Disease. H. S. Rusk. Pueblo.—p 463

Georgia Medical Association Journal, Atlanta

21:463 506 (Dec.) 1932

- Historical Sketch of Fulton County Medical Society. W. S. Goldsmith. Atlanta.—p 463
- *Treatment of Pneumonia. J. B. Avera. Brunswick.—p 467
- Economic Status of Medical Profession. B. T. Beasley. Atlanta.—p 469

Treatment of Pneumonia—Avera states that in pneumonia the heart should be under control from the onset of the disease. The use of veratrum is elective. The blood pressure should be watched constantly. Digitalis should be given at the onset of the disease and continuously. It should be administered hypodermically in dosages depending on the patient's size and age. The bowels must be moved daily. Food should be given in small amounts regularly, as solid food will help to keep distention down. Good nursing is half of the treatment. Fresh, warm air is necessary. The patient should be kept quiet. Chest applications are elective but should be tried in every case unless the patient objects to their use. Antipyretics and serums are elective. Distention should be guarded against from the beginning. Drastic measures should be resorted to before allowing the patient to become distended. Dextrose and insulin should be given at the first sign of any dehydration, toxemia, or a high diacetic urine test, this being one of the most important steps in the treatment of pneumonia. The author's conclusions are based on the efficiency of dextrose and insulin treatment in approximately 100 cases of pneumonia with no fatalities.

Illinois Medical Journal, Chicago

62 477 570 (Dec.) 1932

- Rheumatic Heart Disease. F. M. Smith. Iowa City.—p 497
- Lumbar Sympathetic Ramisection for Relief of Pain Due to Carcinoma of Uterus. R. A. Kordenat. Chicago.—p 503
- Right Sided Aorta. Report of Case. D. L. Jenkinson. Chicago.—p 505
- Nephrosis. Report of Case. W. Pearce. Quincy.—p 508
- *Radiographic Diagnosis and Management of Mastoiditis. D. S. Beilin. Chicago.—p 513
- *Clinical Experiences in Treatment of Peptic Ulcer with Gastric Mucin. S. J. Fogelson. Chicago.—p 516
- *Factors of Importance in Treatment of Exophthalmic Goiter. W. O. Thompson. Chicago.—p 520
- Maternal Mortality and Common Sense. A. Hall. Springfield.—p 529
- Pioneering in Financial Prophylaxis. T. P. Foley. Chicago.—p 533
- Agranulocytosis. A. A. Hayden. Chicago.—p 537
- Complications of Puerperium. E. C. McGill. Evanston.—p 540
- *Treatment of Postoperative Ileus with Spinal Analgesia. G. G. Brown. Chicago.—p 544
- Allergic Nasal Disease. L. B. Bernheimer. Chicago.—p 547
- Public Health Aspects of Institutional Care of Indigent Patients by the State Department of Public Welfare. H. Worthington. Chicago.—p 550
- Some Aspects of Mechanics of Chest. Their Causes and Effects. M. H. Winters. Galesburg.—p 555
- Potassium Sulphocyanate in Hypertension. M. T. Bolotin. Chicago.—p 557
- Original Diagnoses in Two Thousand Cases of Definite Pulmonary Tuberculosis. G. T. Palmer. Springfield.—p 560

Diagnosis and Management of Mastoiditis—According to Beilin, the roentgenographic examination of the mastoid reveals its type, the extent of its development, the cells involved and their location, the position of the sinus, as well as the character of the anterior sinus wall, and the tegmen tympani. Repeated roentgen examinations are of value in determining whether the infectious process in the mastoid is clearing up, remaining stationary or advancing. In conjunction with the clinical observations, the roentgenographic examination may indicate or contraindicate surgical intervention. The presence of perisinuous abscess or epidural abscess may often be elicited by this examination. The roentgenographic examination of the mastoid is of cardinal importance, as well as indispensable as a diagnostic aid in all cases of mastoiditis.

Treatment of Peptic Ulcer with Gastric Mucin—Fogelson states that although mucin has been used for only approximately two years in the treatment of peptic ulcer, the following conclusions are justified 1 Experimentally, gastric mucin inhibits protein digestion in vivo 2 The incidence of experimental ulcer formation in the dog can be radically reduced by adequate doses of mucin 3 One hundred and seventy intractable, complicated peptic ulcer patients were treated by the three associated Northwestern University Medical School groups, and by clinicians throughout the United States cooperating with the gastric mucin committee Over 90 per cent of these patients were relieved of all subjective symptoms in approximately one week 4 There have been two recurrences in the 110 peptic ulcer patients treated by the author during 1931

Treatment of Exophthalmic Goiter—Thompson calls attention to the fact that the form in which iodine is administered in exophthalmic goiter does not matter The effective dose of iodine is much smaller than that ordinarily employed Although iodine is important, too much dependence must not be placed on it It has reduced the number of deaths from postoperative crises but has not abolished them Therefore, everything that is known to act favorably on the disease should be used to augment the effect of iodine, e g, a high caloric diet and rest The patient should be prepared for operation in the hospital and not at home Operation should never be performed when the metabolism is rising rapidly, whether iodine is being administered or not Gain in weight and well marked reduction in basal metabolism during the administration of iodine indicate that the postoperative reaction will probably be mild One of the most important factors in determining the ability of the patient to withstand a subtotal thyroidectomy appears to be the intensity of the nervous manifestations of the disease In all doubtful cases, the operation should be done in at least two stages The extent of the thyroidectomy should be determined by the initial severity of the disease and the response of the patient to treatment and only rarely by the pulse rate during operation Auricular fibrillation in the absence of other untoward signs is not a contraindication to a subtotal thyroidectomy While the most important use of iodine is to prepare patients for operation, in a few mild cases it will control the disease indefinitely, and in many cases in which the disease persists following a subtotal thyroidectomy it may be controlled by iodine until it disappears

Treatment of Postoperative Ileus—Brown reports that three-fifths the anesthesia dose of procaine hydrochloride given intraspinally apparently relieved all symptoms of ileus in three cases that previously appeared hopeless The small dose does not cause such a great fall in blood pressure and when given below the first lumbar vertebra is fairly safe The good results from blocking the splanchnics overbalance the dangers in a severe case of postoperative ileus Intravenous injections of dextrose should be given during the spinal analgesia to counteract the fall in blood pressure

Indiana State Medical Assn Journal, Fort Wayne

25 519 580 (Dec 15) 1932

- Chronology of Indiana State Medical Association Since Oct 15, 1907 J H Weinstein, Terre Haute.—p 519
History of "The Journal" W N Wishard Indianapolis.—p 529
History of Medical Education in Indiana in Last Twenty Five Years B D Myers, Bloomington.—p 531
Indiana State Board of Health W F King, Indianapolis.—p 536
Eye Fundus Lesions in Nephritis A E Bulson, Fort Wayne.—p 537
The Pathologic Mastoid Complications, Diagnosis, Management W F Clevenger, Indianapolis.—p 541
Physiotherapy L A Ensminger, Indianapolis.—p 544

Johns Hopkins Hospital Bulletin, Baltimore

51 335 393 (Dec) 1932

- Changes in Total Gaseous Metabolism of Unanesthetized Dogs After Intravenous Injection of Posterior Pituitary Extracts E M K Geiling and A M DeLawder, Baltimore.—p 335
*Etiology and Pathogenesis of Whooping Cough A R Rich, Baltimore.—p 346
Splenic Lesion in Hemolytic Jaundice W P Thompson, New York.—p 365
*Paratyphoid Like Fever in Children Due to Salmonella Supestifer Group Ann G Kuttner and H D Zepp, Baltimore.—p 373

Whooping Cough—According to Rich, the evidence is insufficient to prove that the Bordet-Gengou bacillus represents the whole story of the etiology of whooping cough He shows

that influenza bacilli localize in the cilia of the respiratory tract exactly as do Bordet-Gengou bacilli They are found in this location when they act as secondary invaders, not only in pertussis but also in influenza and in measles The presence of gram-negative bacilli in the cilia in pertussis does not mean, therefore, that they are Bordet-Gengou bacilli The relation of the influenza bacillus to paroxysmal cough is discussed Mononuclear-cell infiltration of the bronchial walls, which is characteristic of interstitial pneumonia, occurs in pertussis uncomplicated by pneumonia It is pointed out that this interstitial change occurs almost exclusively in diseases in which there are strong reasons for suspecting the etiologic role of filtrable viruses (measles, influenza, pertussis), and the possibility that this lesion may be the effect of an invisible virus rather than of secondary bacterial invaders is discussed Observations bearing on the view that an invisible virus may be concerned in the etiology of pertussis are presented Cases showing intranuclear inclusion bodies in the lungs in pertussis are described, and the possibility that these may represent the effect of aspirated herpes virus is discussed Experiments that have demonstrated the existence of a filtrable virus associated with pertussis, and capable of producing respiratory catarrh, are reported in a separate communication, together with evidence relating to the role of the Bordet-Gengou bacillus

Paratyphoid-Like Fever in Children—Kuttner and Zepp describe seven cases of infection with bacilli of the hog cholera group (*Salmonella supestifer*) in children ranging from 7 months to 6 years The organisms were isolated by blood culture in every instance and fell into two groups, six of the cultures belonging to group II (monophasic) and one to group I (diphasic)

Journal of Infectious Diseases, Chicago

51 383 578 (Nov Dec) 1932

- Chemical Composition of Active Principle of Tuberculin XVI Local Cutaneous Sensitization (Arthus Phenomenon) Produced in Normal Rabbits and Guinea Pigs by Protein of Tuberculin Florence B Seibert, Chicago.—p 383
Appearances Produced in Blood Agar by Bacteria of Bacterium Coli Group M Paulson and J H Brown, Baltimore.—p 407
Hemophilus Influenzae from Throats of Polar Eskimos J R Wells and Evelyn Dixon, St Louis.—p 412
Isolation and Differentiation of Tubercle Bacilli on Bordet Gengou and Lowenstein Mediums Lucy Mishulow, New York.—p 416
*Bacterial Transformation I Opaque and Translucent Variants of Strain of Bacillus Dysenteriae (Gay Harris Group) A Compton, Alexandria, Egypt.—p 428
Suggested Medium for Growth of Corynebacterium Diphtheriae. A M Wahby, Ithaca, N Y.—p 441
Possible Relation of Aciduric and Acidogenic Micro Organisms to Dental Caries W H Tucker, Chicago.—p 444
Precipitin Reaction II Effect of Certain Electrolytes on Formation of Precipitates Cornelia M Downs and Selma Gottlieb, Lawrence, Kan.—p 460
Effect of Vitamin A Free Diet on Resistance to Infection by Salmonella Enteritidis L S McClung and J C Winters Austin Texas.—p 469
Effect of Dietary Deficiency of Vitamin D in Relation to Infection by Salmonella Enteritidis L S McClung and J C Winters, Austin, Texas.—p 475
Attempt to Grow Tubercle Bacilli Within Single Celled Organism Colpidium Campylum Lucia E Jordan, Chicago.—p 482
Adenotonsillectomy and Disease of Upper Respiratory Tract (Common Cold) in Adults W M Gafafer, Baltimore.—p 489
Equine Encephalomyelitis Beatrice F Howitt, San Francisco.—p 493
Antigenic Properties of Virus of Rabies II Multiplicity of Strains as Shown by Agglutinin Absorption and Neutralization L C Havens and Catherine R Mayfield, Montgomery, Ala.—p 511
*Latent Period in Passive Anaphylaxis J H Lewis, Chicago.—p 519
*Behavior of Bacteriophage in Body Fluids and Exudates M G Colvin, New Haven, Conn.—p 527
Clostridium Botulinum, Type C, Associated with Western Duck Disease Janet B Gunnison and G L Coleman, San Francisco.—p 542
Local Skin Reactivity to Bacterial Filtrates Variations in Neutralizability of Meningococcus Reacting Factors G Schwartzman, New York.—p 552
Influence of Cornstarch, Sucrose and Banana Powder on Acid Base Equilibrium and Bacterial Flora of Gastro-Intestinal Tract of Rat L Arnold, Elladeane Korando and Virginia Ryan, Chicago.—p 556
Results of Examination of Blood for Tubercle Bacilli by Löwenstein's Culture Method W Haymaker, W Ekhardt and J Freund, Philadelphia.—p 562
*Polymyelitis III Results of In Vitro Neutralization Tests on Serums of Both Treated and Untreated Polymyelitic Patients Beatrice F Howitt, San Francisco.—p 565

Bacterial Transformation—Compton describes two naturally occurring variants, opaque (O) and translucent (T), of an organism of the Gay-Harris group of Bacillus dysenteriae, encountered in cases of acute bacillary dysentery at Alexandria

He presents sharply defined differences between the variants in cultural, morphologic, serologic and lytic properties, with less sharply defined differences in virulence, immunizing power and susceptibility to the bactericidal action of normal serum. There appears to be no detectable difference between them in sensitiveness to salt or in biochemical properties. He discusses characteristic lenticular or fusiform bodies, which are a feature of colonies of the O variant on agar. They are thought to be of the nature of bacterial aggregates and may be a cause of the fluorescence. The usual confirmatory tests for "smoothness" and "roughness" of bacterial variants—sensitiveness to salt, clouding of broth and specific agglutination—find no application as distinguishing tests of "opaqueness" and "translucence." Instead, the differential confirmatory tests for this type of bacterial variation are internal lenticular bodies in the colony structure, fluorescence by obliquely transmitted artificial light, and phage action.

Latent Period in Passive Anaphylaxis—Lewis states that in his experiments he could not confirm the experiments of Friedberger indicating that the latent period in passive anaphylaxis could be dispensed with by using an homologous sensitizing antiserum. With the use of a guinea-pig anti-tuberculo-protein serum of high titer, guinea-pigs can be passively sensitized to a fatal anaphylactic death in not less than four hours after the injection of the sensitizing serum, the same period required for sensitization with a heterologous antiserum. The smooth muscle of the guinea-pig uterus will show anaphylactic sensitization two hours after an intravenous injection of homologous sensitizing serum. An isolated guinea-pig uterus is passively sensitized after remaining in a solution of guinea-pig anti-tuberculo-protein serum for two hours. The uterus is not sensitized after four hours in a solution of rabbit antihorse serum. The failure of the author's and of other reported experiments to show that the latent period of passive sensitization can be dispensed with, even with the use of homologous antiserum, leaves the positive results of Friedberger to be explained on some other basis.

Bacteriophage in Body Fluids and Exudates—Colvin outlines the results of his clinical investigations in fifty-five patients in regard to the importance of the various factors concerned in inhibition of bacteriophagy in body fluids. He found that variation of serum, body fluid, race of bacteriophage and bacterial strain or species introduces distinct differences in the amount of inhibition. His attempts to adapt a staphylococci or a streptococci phage to produce complete lysis in serum have been practically unsuccessful. He shows that repeated contact with serum may have a tendency to make an organism lysis-resistant and that consequently an adaptation to resist lysis develops. A study of the mechanisms of inhibition to lysis shows that serum delays multiplication of the bacteriophage but does not prevent specific fixation of the corpuscle. In the serum, the protein fraction is the main factor in inhibition of lysis, while in urine the crystalloid fraction inhibits. The observations suggest that bacteriophagy in the body is much modified as compared to test tube standards of lysis. This modification is in the direction of lessening the sterilizing capacity of the bacteriophage.

Polio-myelitis—According to Howitt's observations, of the serums from twenty-two treated patients who had recovered from polio-myelitis, six (27.2 per cent) gave positive in vitro neutralization of polio-myelitis virus, two (9 per cent) gave partial protection in the monkey, while fourteen (63.6 per cent) showed no protection. Of the serums from twenty untreated patients, eight (40 per cent) showed positive neutralization, one (5 per cent) gave partial protection, while eleven (55 per cent) failed to neutralize the virus. Antiviral substances may be present in a certain percentage of treated persons, but apparently those receiving serum treatment show less tendency to produce neutralizing substances than the untreated ones. The patients showing complete recovery after transient or only slight paralysis give more evidence of the production of a potent serum than those in whom severe paralysis develops. The author concludes that the results of her experiments may aid in explaining certain discrepancies in the reports on human convalescent serum therapy in polio-myelitis and certainly show the need for giving serum from known tested donors either recovered or naturally immune to the disease. The use of a standardized serum from immunized large animals would naturally be indicated.

Journal of Lab and Clinical Medicine, St Louis

18 111 218 (Nov.) 1932

- *Study of Lactobacilli, with Especial Reference to *Bacillus Acidophilus*—F L Smith 2d, R Y Gottschall and A B Wallgren, Pittsburgh—p 111
- Study of Lactobacilli Mediums Employed—A B Wallgren and F L Smith 2d, Pittsburgh—p 134
- *Blood Pressure Lowering Effect of Bismuth Subnitrate by Mouth in Normal and Increased Arterial Tension—C Bruen, New York—p 138
- Organic Fraction of Urinary Phosphorus—B S Walker and Elisabeth W Walker Boston—p 164
- *Colloidal Gold Test for Poliomyelitis Immune Bodies in Blood Serum—F Eberson and W G Mossman, San Francisco—p 167
- Septicemia Due to Higher Bacteria: Case Report and Bacteriologic Findings—Sara Alicia Scudder New York—p 187

Lactobacilli—According to Smith and his associates, the morphology and cultural characteristics of *Bacillus acidophilus* depend on the nature of the food supply, the pH value of the medium and the presence of small quantities of inorganic metals, such as zinc, copper and iron. Any member of the lactobacillus group may be converted into or caused to assume the morphologic and cultural characteristics of any other member. The members of the lactobacillus group may be arranged in a cycle according to their morphology and cultural characteristics. Any member of this cycle in assuming the morphology and cultural characteristics of any other member passes successively through the characterization of all intervening members in the cycle. The cycle is amenable to division into two natural parts: one is composed of members whose usual habitat is intestinal, and the other contains the nonintestinal members. In the case of adverse conditions, if the organism survives, most of the nonintestinal and practically all of the intestinal forms assume the coccoid shape. The change in morphology extends over a considerable period of time, even under the most favorable conditions. This is particularly true in the synthesis of the rod shaped bacilli. The rods pass through a definite process in their synthesis and splitting, in which an interplay of gram-negative and gram-positive forms occurs.

Blood Pressure Lowering Effect of Bismuth Subnitrate—Bruen states that arterial hypertension is mediated by increased arteriolar resistance, thereby increasing cardiac work. The abnormal arteriolar resistance is largely functional and can be reduced by dilatation. Sustained reduction of the arteriolar resistance should obviate the increased demand on the heart, defer its late secondary effects on the circulation and avoid the concomitant hypertrophy of the left ventricle and the hastened development of arteriosclerosis. Among "the pharmacologic and therapeutic characteristics essential to a substance that is to be beneficial in arterial hypertension" is that it "must decrease the arteriolar resistance without disturbing essentially the other fundamental normal characteristics of the circulation, such as the cardiac output, the velocity of the blood flow or the circulating blood volume." Bismuth subnitrate by mouth effects a reduction of blood pressure. In intensity its effect is comparable to that of the other members of the nitrite group. But the nitrite effect of the insoluble basic bismuth nitrates is more prolonged than that of the higher alkyl nitrates. A gradually increasing dosage starting from 5 grains (0.3 Gm.) can be manipulated to give the desired degree of blood pressure reduction. By repetition of the dosage at proper intervals, a temporal summation of effect as in incomplete tetanus may be obtained. The blood pressure might by this means be maintained at a relatively constant reduced level. The nitrite action is exerted almost exclusively on the arterioles. Vasomotor responses, while moderated, remain intact.

Colloidal Gold Test—Eberson and Mossman point out that their colloidal gold test for the detection of immune substances against poliomyelitis in the blood serum has shown to have a direct bearing and practical value in the following problems: 1 Study of susceptibility to this disease among the general population. 2 Selection of donors' serum for therapeutic use in poliomyelitis, especially during outbreaks. 3 Evaluation of therapeutic potency of serums from human and animal sources. 4 Prognosis during the course of poliomyelitis as related to the progressive development or complete absence of serum antibodies. 5 In vitro selection of "protected" mixtures of poliomyelitis immune serum combined with virus for purposes of active immunization.

Journal of Nervous and Mental Disease, New York

76 553 676 (Dec.) 1932

- Transmission of Huntington's Chorea for Three Hundred Years Bures Family Group P R Vessie, Greenwich, Conn.—p 553
 Hughlings Jackson His Opinions Concerning Epilepsy O R Langworthy, Baltimore—p 574
 Paralysis Agitans Pictures in Alcoholics P Schuller, New York—p 586
 Syndrome of Avellis Variation Produced by Angiomatous Polyp in Outer, Middle and Inner Ears, Involving Tenth, Eleventh and Twelfth Cranial Nerves Case E P Fowler, New York—p 589
 Lumbar Punctures in Psychotic Patients S H Epstein, Boston—p 593

Journal of Urology, Baltimore

28 509 638 (Nov.) 1932

- Pathology of Bladder Neck Obstructions A Randall, Philadelphia—p 509
 *Technical Consideration of Endoscopic Revision of Obstructing Prostate J F McCarthy, New York—p 519
 *Transurethral Electrosurgery for Relief of Prostatic Obstruction C W Collings, New York—p 529
 Evolution of Vesical Neck Resection Past Results, Future Problems and Use of Author's Resectoscope T J Kirwin, New York—p 539
 Ten Months' Experience with Transurethral Prostatic Resection N G Alcock, Iowa City—p 545
 *Results Five Years After Transurethral Treatment of Benign Prostatic Obstruction H C Bumpus, Jr., Rochester, Minn.—p 561
 Endoscopic Resection of Prostate Analytic Study R Day, Los Angeles—p 569
 Experimental Research by Parabiosis, Showing Hypophyseal Gonadal Influence on Growth and Development of Prostate Gland W E Lower and N F Hicken, Cleveland—p 601
 Chronic Infection of Urachus Report of Three Cases J B Squier and G F Cahill, New York—p 607
 Diverticula of Urethra Caused by Periurethral Abscess J R Waugh, Hot Springs, Ark—p 619
 Prostatectomy Complicated by Acidosis R A Hooe, Washington, D C.—p 627
 New Sterilizer for Ureteral Catheters A M Crance, Geneva, N Y—p 637

Endoscopic Revision of Obstructing Prostate—McCarthy points out that in the endo-urethral management of prostatic obstructions there is a remote but none the less real menace of infection. Every precaution should be taken to obviate such an eventuality, including the most careful preoperative preparation, sterilization of urine, rigid operating room asepsis, shaving and other preparation as for open operation. Finally, and of utmost importance, secondary revisions should never be attempted until complete urethral convalescence has been established. This convalescence should be checked by endoscopic observation. In conclusion the author states that it is his conviction that as outlined by him there is not a single logical defect in the rationale of this method. In his hands it meets the most exacting requirements of visualization, excision and hemostasis.

Relief of Prostatic Obstruction—According to Collings, small and moderate sized prostatic obstructions may be efficiently relieved under direct vision by the high tension cutting current through the cysto-urethroscope. Because of instrumental difficulty and prolonged cystoscopic manipulation, marked enlargement had best be relieved by prostatectomy. Nine of 150 private patients operated on died (on an average of two years) after operation of heart disease, carcinoma or intercurrent infection. Five per cent of all patients required a second operation to relieve them. Eighty-five per cent of this group have been relieved of their symptoms and residual urine up to eight and one-half years after operation—an average of four years for all. The operation relieves a serious condition in an elderly patient with a minimum of danger to life. The author has not had a death due to operation.

Treatment of Benign Prostatic Obstruction—Bumpus reports that, of sixty-six patients heard from five years after transurethral treatment of benign prostatic obstruction, forty-eight expressed themselves as satisfied with the result and eighteen as dissatisfied, including six who later had to have prostatectomy. Of the twelve dissatisfied patients, two wrote that they were free of urinary symptoms but had to have sounds passed occasionally, both were operated on by cautery resection, which would seem to refute the earlier prediction that late strictures would develop in the majority of patients treated by this means. This study of 102 cases in which prostatic tissue was removed through the urethra more than five years ago

because of urinary obstruction would indicate that transurethral resection should, with improvement in technic which has occurred in the last five years, be performed with less risk, with less time spent in the hospital and consequently with less expenditure of funds, with a final functional result equal in permanence to that usually obtained after prostatectomy.

Kentucky Medical Journal, Bowling Green

30 620 720 (Dec.) 1932

- Pediatrics and Pediatricians J L Morse, Boston—p 694
 Medical Association and Milk Supply I V Hiscock, New Haven, Conn.—p 697
 Removal of Prostate Through Urethra O Grant, Louisville—p 702
 Postoperative Irradiation of Mammary Cancer W J Young, Louisville—p 711

Laryngoscope, St Louis

42 901 964 (Dec.) 1932

- Evaluation of Roentgenology in Otolaryngology I Teeth in Relation to Otorhinology S Fineman, New York—p 901
 Id II Sinuses F M Law, New York—p 909
 Id III Mastoid G S Dixon, New York—p 911
 Id IV Larynx R Golden, New York—p 915
 Id V Esophagus A J Quimby, New York—p 919
 Id VI Temporal Bone and Its Variations E B Burchell, New York—p 921
 Id VII Relation of Roentgenography of Chest to the Laryngologist Atelectasis and Neoplasms of Lungs C B Rabin, New York—p 923
 Left Cavernous Sinus Thrombosis Case Report. H Dupuy, H F Brewster and A Thomas, New Orleans—p 931
 Discharging Ear, Eighteen Years, Relieved by Nine Treatments of Mercury Quartz Light Case Report. P S Stout, Philadelphia—p 933
 Inexpensive Photomicrographic Apparatus R Lorente de No, St Louis—p 934
 Otitic Hydrocephalus (Pseudomeningitis) Report of Case. J C Scal, New York—p 936
 *Inferior Meatal Puncture Versus Catheterization of Natural Orifice of Maxillary Sinus H Dintenfuss, Philadelphia—p 943
 *Effective Substitute for Cocaine and Procaine in Rhinology W L Gatewood, New York—p 951
 Congenital Cyst of Larynx A J Lorie and P Lux, Kansas City, Mo—p 957
 Improved Pomeroy Syringe F W White, New York—p 961

Inferior Meatal Puncture of Maxillary Sinus—Dintenfuss believes that inferior meatal puncture can be performed in almost every case of maxillary sinus and requires little previous experience. There is, however, greater discomfort and danger of air embolism, hemorrhage, shock, pain and emphysema of the soft parts following its employment. Ostial catheterization obviates these drawbacks but it cannot be used as frequently as the inferior meatal puncture because the anatomic configuration will not permit. It also demands a thorough knowledge of the anatomy of the lateral nasal wall, together with some degree of skill and experience. Nevertheless, when it can be accomplished it is performed with such apparent ease as to evoke favorable comment on the part of the patient. In the diagnosis of disease of the maxillary antrum, therefore, ostial catheterization should always be attempted before resorting to the puncture of the inferior meatus. Puncture of the inferior meatus is done in the following manner. The anterior end of the inferior turbinate, and especially that portion of the lateral nasal wall beneath, is painted with a 10 per cent solution of cocaine and epinephrine. A straight needle of the Lichtwitz type is introduced beneath the inferior turbinate until it is about half-way back, then the point is elevated by depressing the hand until it reaches the attachment of the turbinate with the lateral wall of the nose. The needle point is pushed in a direction toward the posterior part of the eyeball of the same side. A sudden penetration with a crackling of bone indicates that the procedure has been successfully accomplished.

Substitute for Cocaine and Procaine in Rhinology—Gatewood states that the 25 per cent solution of nupercaine has proved to be a most satisfactory agent for causing topical anesthesia prior to such operations as submucous resection, ethmoidectomy, intranasal antrotomy and turbinectomy. The 25 per cent solution of nupercaine produces prompt, effective and prolonged anesthesia without signs of local irritation or of systemic intoxication. When used in 1:1000 solution with epinephrine, nupercaine has been found fully as effective as a 1 per cent solution of procaine hydrochloride for infiltration anesthesia prior to tonsillectomy.

Nupercaine has the advantage over procaine for infiltration in that the duration of the anesthesia produced by the former far exceeds that following injection of the latter, as a consequence, the tendency for postoperative bleeding is less when nupercaine is used as the anesthetic agent. In the routine operative work in the rhinolaryngologic clinic at the Polyclinic Hospital, nupercaine has been employed in 87 submucous resections, 36 ethmoidectomies, 29 intranasal antrotomies, 41 turbinectomies and 212 tonsillectomies. The author describes his method of procedure in each of these operations.

Medical Annals of District of Columbia, Washington

1 305 332 (Dec.) 1932

- *Value and Indications of Intravenous Injections in Internal Medicine. S U Marietta Washington—p 305
- Coronary Occlusion General Review J A. Lyon, Washington—p 310
- Polycythemia Rubra Vera Report of Case Treated with Roentgen Ray J B Glenn Washington—p 315
- Some Notes on William Shakespeare's Knowledge of Medicine S M Dodek, Washington—p 317
- Dyspnea and Some Mechanisms of Respiratory Regulation W F Hamilton, Washington—p 321

Intravenous Injections—Marietta reviews the literature and states that intravenous injections are not recent medical conceptions. Their practical use may be dated back to the discovery of iso-agglutinins in the blood in 1901 and the anticoagulant use of sodium citrate in 1914 and 1915. Intravenous injections of all kinds are used more frequently than the rather definite indications for such procedures would require. The reactions occurring with varying degrees of frequency following intravenous injections may be reduced by carefully observing certain well defined rules in the preparation and the mode of administration. Whole blood is preferable to citrated blood for transfusion purposes, but for the inexperienced worker or one without proper assistants, citrated blood is best. Dextrose has the widest application of any intravenous medicament. The strength of the solution to be used is determined by the purpose for which it is to be given. Weak solutions are used when fluid is the main requirement, moderately strong solutions are used when nourishment is desired, and strong solutions are used for the relief of edema and increased intracranial pressure.

Medical Journal and Record, New York

136: 485 528 (Dec. 21) 1932

- Recent Advances in Physical Medicine R Kovacs New York—p 485
- Vital Considerations in Blood Transfusion L Miller, New York—p 491
- Congenital Diaphragmatic Hernia with Dextrocardia Report of Case. C L Davidson Jamaica N Y—p 492
- Simplified Treatment of Ringworm of Scalp I S Barksdale Green ville S C—p 494
- Biophysicologic Appetizers in Nutrition of Child G D Scott, New York—p 496

Medicine, Baltimore

11: 371 535 (Dec.) 1932

- *Adrenal Cortical Hormone. W W Swingle and J J Piffner Princeton N J—p 371
- Salt and Water Metabolism in Nephritis. J P Peters New Haven, Conn—p 435

Suprarenal Cortical Hormone—Swingle and Piffner used the cortical hormone in the treatment of twenty cases of Addison's disease, three of exophthalmic goiter, one of myxedema, two of diabetes, five of neurasthenia and psychoneurosis, one of myasthenia gravis, four of anorexia nervosa, one of myositis of undetermined origin and one of postural hypotension. The immediate results were excellent in fifteen of the twenty cases of Addison's disease. Five patients died. Two patients are still under treatment. Two patients have been observed over a long period and have been given what the authors believe constitutes an adequate amount of the hormone, but without satisfactory response. In the diseases other than Addison's disease, two patients with exophthalmic goiter felt considerably better subjectively, they showed evidence objectively of less stimulation and some increase in strength, with slowing of the pulse and decrease in the basal metabolic rate from 60 to 30 per cent in one case and from 55 to 28 per cent in the other. In two of the four cases of anorexia nervosa there was slight improvement, appetite developed in one case and an increased ability to take food developed in the other. Results were practically negative in the five cases of neurasthenia and psychoneurosis.

None of the other diseases were affected favorably by the cortical hormone. It is important to bear in mind that the clinical results reported by the authors were obtained by use of cortical extracts of relatively low potency. The preparations employed in all their work represented their earlier material, which assayed only 4 to 10 dog units per cubic centimeter. Their recent extracts made from whole glands assay from 40 to 80 dog units per cubic centimeter and hence are many times more potent than the early dissected cortex material used for clinical tests. The matter of dosage with this more potent extract and the daily requirements of patients with Addison's disease have not been worked out as yet. This is a clinical problem that remains to be solved. Judging from their assay experiments on dogs, the quantities of extract heretofore given patients are far greater than is necessary when this more potent preparation is used. The latter type of extract has been clinically tested in three severe cases of Addison's disease with excellent results.

Minnesota Medicine, St Paul

15: 797 874 (Dec.) 1932

- Observations on Arterial Hypertension R. H. Major, Kansas City Mo—p 797
- Experimental Evidence for Intravenous Vaccine Therapy in Chronic Arthritis B J Clawson Minneapolis—p 804
- Treatment of Chronic Arthritis Role of Intravenous Streptococcal Vaccine. M Wetherby Minneapolis—p 806
- *Masked Mastoiditis. H L Williams, Jr, Rochester—p 813
- *Modern Aspects of Surgical Treatment of Urogenital Tuberculosis G J Thomas, Minneapolis and T J Kinsella, Oak Terrace—p 821
- Cervical Ribs and Abnormal First Thoracic Ribs W C. Carroll, St. Paul—p 828
- *Myosarcoma of Rectum. F W Rankin and L M Larson, Rochester—p 833
- Acute Intestinal Obstruction W G Strobel Duluth—p 836
- Consideration of Utility of Radium in Therapeutics R E. Fricke Rochester—p 840
- Use of Spinal Anesthesia in Gastric Crisis in Tabes Dorsalis G R Kamman, St. Paul—p 845
- *Sodium Amytal Anesthesia in Obstetrics Report of Its Oral and Intravenous Use in Seventy Eight Cases J J Swendsen St. Paul—p 848

Masked Mastoiditis—Williams states that masked or latent mastoiditis, because of its frequency, its insidious type of development, and its lack of the majority of the usual symptoms, is a disease that may present great difficulty in diagnosis. It would seem that the term "latent mastoiditis" can seldom be applied, for it would imply a period completely without symptoms and with no advance of the disease process. There is only one case in the series considered by the author that would apparently meet these criteria. Although the type of case considered by the author has usually been termed latent mastoiditis in the literature, the term "masked mastoiditis," which is occasionally used, seems much better and covers all those cases of mastoiditis presenting unusual difficulty in diagnosis. The principal signs and symptoms of latent or masked mastoiditis are as follows: 1 There is preceding infection of the upper part of the respiratory tract, with usually some symptoms of disease of the middle ear, separated in time from the appearance of symptoms referable to the mastoid process to a greater or lesser extent. 2 Great emphasis is placed by several authors on the general appearance of the patient, who loses weight, is weak and is without appetite. There is also an almost unique expression of apathy. 3 Fever is often present, which may be intermittent or of the continued type. Some of the patients had been treated for several months for typhoid before a sudden discharge from the ear called attention to the true pathologic process present. This mistake was made previous to the general use of the agglutination test for typhoid. 4 Lancinating pain is referred to the occiput, along the zygoma, into the neck and into the temporal region. 5 There is drooping or sagging of the posterosuperior wall of the external auditory canal. 6 A tendency is present for impairment of hearing to be pronounced because of involvement of the inner ear.

Urogenital Tuberculosis—Thomas and Kinsella point out that the successful surgical treatment of urogenital tuberculosis depends primarily on an accurate diagnosis. This may be accomplished only after repeated complete urologic examinations. Surgical treatment for any type of tuberculosis, except in an emergency, should not be undertaken until the patient has developed a sufficient defense mechanism. The surgical treatment of urogenital tuberculosis is rarely an emergency.

Surgical or medical treatment of tuberculosis should aim at the patient as a whole, not alone at the local lesion. Renal tuberculosis or other urogenital lesions are local manifestations of a constitutional disease. Nonsurgical renal tuberculosis, unilateral or bilateral, is a nonsurgical condition and should be treated intensively by medical methods. Tubercle bacilli in one specimen of urine obtained from the kidney pelvis is not in itself an indication for nephrectomy. Unilateral slightly destructive tuberculosis should be treated conservatively under careful observation. Nephrectomy is indicated only when progressive disease is present. Extensive unilateral destructive lesions should be treated by surgical methods. Bilateral destructive renal tuberculosis is not a surgical condition except to stop hemorrhage or to relieve pain and sepsis the result of an obstructed ureter. This condition is not always a hopeless one as ordinarily considered. Under careful medical management it may be compatible with life and useful work for a number of years. Genital tuberculosis is usually an infection of the prostate and epididymis and in a high percentage of patients is associated with a renal lesion. Tuberculous abscesses of the prostate occur frequently. They drain into the posterior urethra and may produce pus and tubercle bacilli in the urine. Tuberculosis of the epididymis is often an acute disease and may be cured by drainage and heliotherapy. When an operation is necessary it should be epididymectomy and not orchidectomy. Surgical treatment of tuberculosis does not cure the disease but is merely a mechanical aid in producing a clinical result. Constitutional treatment of urogenital tuberculosis is important and should supplement the surgical treatment, both before and after operation.

Myosarcoma of Rectum—Rankin and Larson sum up the characteristics of myosarcoma of the rectum as follows: 1. The lesion occurs most frequently among men in the fifth and sixth decades, only one case of a woman was found recorded in the literature. 2. The tumor is slow growing with late metastasis but with marked tendency to local recurrence. 3. The tumor occurs as a rounded circumscribed mass lying close to the internal anal sphincter and originating in the muscular tissues, later it breaks through into the rectal mucosa and then externally to the perianal tissues. 4. After involvement of the mucous membrane the lesion somewhat resembles carcinoma, but the two can usually be distinguished by careful examination. A myosarcomatous tumor possesses a broad indurated base resulting from considerable growth before the mucosa is reached. The lesion encroaches on the lumen to a greater extent than does carcinoma, resulting in symptoms of obstruction before ulceration and bleeding occur. 5. Regional lymphatic involvement is apparently rare in cases of myosarcoma, but common in the case of carcinoma, death in the former takes place from direct extension to pelvic organs, to obstruction and to local recurrences, and when the blood stream is invaded to generalized sarcomatosis. 6. In the clinical differentiation the chief conditions to be considered are carcinoma, syphilis, tuberculosis and polyp. The early involvement of the mucous membrane is carcinoma, resulting in ulceration, bleeding, infection and frequently cachexia, in contrast to that of myosarcoma, in which constipation, straining and urinary difficulties are the first symptoms. 7. Myosarcoma exhibits a marked tendency to local recurrences after excision. This was evidenced in each of four cases reported by the authors and it would seem that radical treatment by wide excision locally is warranted. Furthermore, it seems unlikely that much benefit can be derived from radiotherapy even in large doses, so that resection is, no doubt, the treatment of choice.

Sodium Amytal Anesthesia in Obstetrics—According to Swendson, the intravenous administration of comparatively small, individualized doses of sodium amytal gives more uniform and satisfactory pain relief during labor than when the drug is given orally. Oral administration of somewhat larger doses, however, because of its simpler and safer technic, should be used whenever possible, since it can be supplemented by intravenous injections of the drug if satisfactory relief from pain is not obtained. Either method of administration, when supplemented by an inhalation anesthetic, produces gratifying amnesia and safe and adequate relief from pain during most labors. Neither the oral nor the intravenous methods of administration produce deleterious effects on the infants.

Nebraska State Medical Journal, Lincoln

17 505 544 (Dec.) 1932

- Symposium on Cerebral Birth Injuries Pathogenesis and Clinical Syndromes G. A. Young, Omaha—p. 505
Prevention of Intracranial Injury W. H. Taylor, Lincoln—p. 510
Early Diagnosis and Treatment of Intracranial Hemorrhage in the New Born C. Moore, Omaha—p. 513
Purpuras A. S. Rubinitz, Omaha—p. 518
Traumatic Surgery in Rural Hospital C. G. McMahon, Superior—p. 524

New England Journal of Medicine, Boston

207 863 912 (Nov. 17) 1932

- Essential Pathology Found in Diphtheria, Scarlet Fever and Tuberculosis, with Especial Reference to Involvement of Heart Based on Review of Necropsy Cases at Boston City Hospital for the Past Forty Years R. L. Irwin, Boston—p. 863
The Heart in Diphtheria and Scarlet Fever E. H. Place, Boston—p. 864
The Heart in Pulmonary Tuberculosis J. B. Hawes 2d, Boston—p. 874
Conservative Kidney Surgery A. Riley, Boston—p. 877
Treatment of Acute Anterior Poliomyelitis with Nonspecific Protein C. L. Thenebe and V. P. Cenci, Hartford, Conn.—p. 880
The Sanatorium Child L. A. Alley, Middleboro, Mass.—p. 884

207 913 962 (Nov. 24) 1932

- Walter E. Fernald Plan for the Examination of Retarded School Children N. A. Dayton, Boston—p. 913
Venous Pressure W. Evans, Detroit—p. 934
*Etiology of Eczema W. J. Macdonald, Boston—p. 940
Solid Double Rudimentary Uterus with Absence of Cervix and Vagina E. K. F. Ronka, Boston—p. 945

Etiology of Eczema—According to Macdonald, exogenous eczema can be diagnosed by patch tests, but the investigator will undoubtedly experience many failures. The patch test is of particular value in industrial eczema. The scratch test is valuable for the elucidation of dietetic problems in eczema. Infantile eczema is a dietetic problem. The Prausnitz-Küstner reaction proves the presence of sensitizing antibodies. Bacterial sensitization and glycosuria can cause eczema. The epidermophyton simulates eczema in the viciousness of its subjective signs. Objectively one numbs the other, but the trained eye can classify them. In doing a patch test, the supposedly offending substance is applied to a small square of damp linen. This is laid on the skin and covered with a larger square of rubber tissue, which itself in turn is finally overlaid with a still larger square of adhesive tape. The rubber tissue is necessary because adhesive tape, being a primary irritant, might confuse the reading, which is done from twenty-four to forty-eight hours later. These patches are most conveniently applied to the back. All suspected articles should be tested. It is of real value only in acute eczema. The scratch test is the application to small cutaneous abrasions of the proteins of various foods, pollens, and so on. All scratches should be equal in size. Blood should not appear. The knife should be sharp, a special type can be obtained from instrument makers. Normal skin is chosen for the tests. The response may occur in half an hour, but a six and twenty-four hour reading is desirable. Close observation and comparative readings are necessary for the correct interpretation of what constitutes a reaction. A reaction is positive not because it attains a certain size but because it is objectively more sizable than a control or other nonreaction substance. It is customary in performing these tests to scratch through a drop of tenth normal solution of sodium hydroxide that contains the protein for that test.

New Jersey Medical Society Journal, Orange

29 893 990 (Dec.) 1932

- Medical and Surgical Problems of Larynx and Hypopharynx H. B. Orton, Newark—p. 893
Lung Complications Following Medical or Surgical Procedures on Upper Respiratory Tract B. S. Pollak and B. P. Potter, Secaucus—p. 898
Complications Following Operations on Upper Respiratory Tract R. H. Dieffenbach, Newark—p. 908
Heart in Relation to Physical Education Mahel G. Leshner, Camden—p. 913
Keeping Schools Open When Poliomyelitis Is Epidemic J. Schapiro, Union City—p. 918
Practical Aids to Diagnosis and in Surgical Management of Meningitis from Ear or Nose W. P. Eagleton, Newark—p. 924
Study of Negro Infant Mortality Rate and What the Well Baby Clinics Are Doing to Lower It C. S. Janifer, Newark—p. 932
Deaths in First Month of Life J. Levy, Newark—p. 935
Collapse Therapy in Pulmonary Tuberculosis S. B. English and P. Geary, Glen Gardner—p. 938
Bone Metastasis in Breast Cancer E. E. Downs, Woodbury—p. 957
Pathology of Living Human Eye and Its Clinical Recording by Color Photography L. D. Redway, Albany, N. Y.—p. 958

Northwest Medicine, Seattle

31 549 594 (Dec) 1932

- *Diagnosis and Treatment of Atypical Hyperthyroidism F W Rankin and S F Haines Rochester, Minn.—p 549
- *Interruption of Sympathetic Pathways for Relief of Pain in Extremities F L Reichert San Francisco—p 554
- Base Forming and Salt Poor Diets Prophylactic and Therapeutic Value as Demonstrated in Europe C U Moore Portland Ore.—p 557
- Mortality in Cystoscopy C D Donahue, Eugene, Ore.—p 561
- Outline of History of Medicine in Pacific Northwest O Larsell Portland Ore.—p 564

Atypical Hyperthyroidism—Rankin and Haines point out that the diagnosis of hyperthyroidism is comparatively easy in most cases. There are, however, many cases in which the diagnosis is difficult even when hyperthyroidism is being carefully considered. Difficulties are most commonly met in conjunction with or in distinguishing from fatigue states, essential hypertension, Parkinson's syndrome and chronic encephalitis without marked manifestations of Parkinson's syndrome. Many emergency cases of heart failure present opportunity for careful discrimination as to possible hyperthyroidism, and, if the condition is found, dramatic results from treatment are often obtained. Severe gastro-intestinal disorders with nausea and vomiting may be the chief manifestations of the crises of exophthalmic goiter. Coma may be precipitated in cases of diabetes by even mild degrees of hyperthyroidism. Hyperthyroidism complicating other surgical conditions has great significance and is almost invariably a contraindication to any operation other than for hyperthyroidism until the hyperthyroidism has been brought under control, as otherwise severe and possibly fatal postoperative reactions may occur. Mild hyperthyroidism may so increase the severity of various associated diseases that it must be universally kept in mind. In cases in which the patients are not seriously ill, perhaps the most frequent difficulties of diagnosis are met in association with fatigue states. Many patients with hyperthyroidism have neurotic tendencies. Many neurasthenic patients present evidences, both symptomatic and physiologic, which easily may be interpreted as being the phenomena associated with hyperthyroidism. The not infrequent elevation of the basal metabolic rate of nervous patients with normal thyroids has its origin in physiologic disturbances that produce in those patients physical disturbances simulating, if not identical with, some of the phenomena of hyperthyroidism. The patient who cannot attain a condition of physiologic rest sufficient to allow the metabolic rate to be normal at the time of the test is likely to be in a similar state at the time of clinical examination. In most cases the nervous phenomena of hyperthyroidism, and particularly of exophthalmic goiter, are obviously different from those resulting from anxiety, lack of assurance, and so forth, but in the mild case there may be a good deal of difficulty in the differentiation. Clinical signs may be very vague. The intoxication of hyperfunctioning adenomatous goiter, physiologically identical with the intoxication produced by ingestion of sufficient quantities of desiccated thyroid, is usually not noticed by the patient until a rather advanced stage is reached. Mild cases of exophthalmic goiter are being seen more frequently, and exophthalmos and considerable enlargement of the thyroid are being seen less frequently. Each of the last few years has brought an increasing need for more meticulous care in observation to determine the presence of hyperthyroidism. Series of tests of the basal metabolic rate instead of single tests and the determination of the effect of iodine in cases of neurosis, essential hypertension or Parkinson's syndrome in which exophthalmic goiter is suspected, are valuable aids to differential diagnosis. Hyperthyroidism should be considered in cases of cardiovascular disturbances, atypical gastro intestinal disturbances with vomiting or diarrhea and cases of diabetes with increased insulin requirements, even though other apparently sufficient causes for the disturbances may be present.

Pain in Extremities—A number of conditions in which pain in the extremity cripples an individual have been treated by Reichert by interruption of the sympathetic pathways to the affected limb. Although grateful improvement or relief of this symptom can be secured it must be borne in mind that the underlying pathologic process still exists and efforts must be made to arrest its progress. Since the dominant factor in these conditions is circulatory protection of the limb from cold must be continued even after the sympathetic block.

Selection of favorable cases is made by a preliminary paravertebral procaine hydrochloride injection of the sympathetic chain, which enables the patient to be ambulatory and to assist the physician, by endeavoring to induce pain, to judge whether permanent interruption would be beneficial. The author has obtained improvement following interruption of the sympathetic pathways in over forty cases for conditions such as Raynaud's disease, scleroderma, xeroderma, selective arthritic cases with obvious vasomotor instability, thrombo-angitis obliterans and arteriosclerotic claudication.

Occupational Therapy and Rehabilitation, Baltimore

11 409-476 (Dec) 1932

- Value of Professional Organization E Muriel Anscombe, St. Louis—p 409
- Library in Occupational Therapy J K Allen, Kings Park, N Y—p 415
- Directed Industrial Therapy as Aid to General Practitioner and Specialist G K Collier Rochester, N Y—p 425

Ohio State Medical Journal, Columbus

28 809-880 (Dec) 1932

- Angina Pectoris J P Anderson Cleveland—p 829
- Surgery of Sympathetic Nervous System M M Zininger, Cincinnati—p 834
- Congenital Absence of Abdominal Muscles Case Reports E H Baxter, Columbus—p 840
- Some Present Day Ideas Concerning Heart Disease from Public Health Point of View J E Benjamin Cincinnati—p 843
- Food Allergy K D Figley Toledo—p 848

Public Health Reports, Washington, D C

47 2245 2266 (Dec 2) 1932

- *Plasmochin in Malaria Prevention Experiments in Alabama J N Baker and D G Gill—p 2245
- Recent Court Decisions on Milk Control J A Tobey—p 2250

47 2267 2295 (Dec 9) 1932

- Standardization of Morbidity Reporting and Development of Morbidity Reporting Area R C Williams—p 2267
- Bacterium Granulosis Conjunctivitis Compared with that Produced from Human Trachoma Transmissibility of Granular Condition Induced in Macacus Rhesus Monkeys by Inoculation with Cultures of Bacterium Granulosis Contrasted with that Induced in Same Species by Direct Transfer from Human Trachoma Ida A Bengtson—p 2281

Plasmochin in Prevention of Malaria—Baker and Gill tested the value of plasmochin in Alabama by administering it at regular intervals to all the people in a certain area and observing the effect on the incidence of malaria during the season. They selected two rural areas for the purpose of the experiment, one was in Macon County and the other in Montgomery County. In the 1930 season every person in the demonstration areas received one tablet of plasmochin compound per week (containing 0.01 Gm of plasmochin and 0.125 Gm of quinine sulphate). In 1931 the dosage of plasmochin was increased to one tablet twice a week. The results of their experiments suggest that plasmochin compound in a dosage of from one to two tablets per week (each tablet containing 0.01 Gm of plasmochin and 0.125 Gm of quinine sulphate), when administered to all the inhabitants of a district, will materially lessen the incidence of malaria. Such a dosage is both safe and convenient. If further experience should confirm these results, it would seem that a valuable addition has been made to the present methods of malaria control, which therapeutic control may be further enhanced through scientific chemical study of the potentialities embraced in plasmochin.

Western J Surg, Obst. & Gynecology, Portland, Ore

40 581 640 (Nov) 1932

- Precancerous Lesions of Breast A R Kilgore San Francisco—p 581
- Skin Temperature Studies II Cases Characterized by Organic Lesions of Arteries W K Livingston Portland Ore.—p 587
- Intestinal Obstruction from Gallstone P K Gilman San Francisco—p 594
- Anomalous Renal Vessels and Their Surgical Significance W J Carsoo Milwaukee—p 597
- Physiology of Parathyroid Glands J B Collip Montreal Canada—p 602
- Correlation of Clinical and Pathologic Diagnoses of Toxic Diffuse Goiter (Graves Disease) A T Bowers Dayton Ohio—p 607
- Determination of Operability in Exophthalmic Goiter L Seed Chicago—p 613
- Presentation of Reports of Three Cases of Thyroid Disease E. M. Eberts Montreal Canada—p 619
- Preoperative Prognosis of Thyroid Disease F Deneen Bloomington Ill—p 627

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Brain, London

55 479 618 (Dec.) 1932

- Athetosis P C Bucy and D N Buchanan—p 479
Cell Station of Vater Pacinian Corpuscle in Retroperitoneal Tissue Afferent Peripheral Pathway in Sympathetic D Sheehan—p 493
*Distortions of Visual Fields in Cases of Brain Tumor Field Defects and Hallucinations Produced by Tumors of Occipital Lobe G Horrax and T J Putnam—p 499
Note Concerning Relation of Frontal Lobes to Posture and Forced Grasping in Monkeys J F Fulton, C F Jacobsen and Margaret A Kennard—p 524
*Syphilis of Nervous System in the Sudanese T F Hewer—p 537
Cerebral Involvement in Head Injury Study Based on Examination of Two Hundred Cases W R Russell—p 549

Distortions of Visual Fields in Brain Tumor—According to Horrax and Putnam, intracranial tumors confined to the occipital lobes are comparatively rare, occurring in only forty instances in a series of 1,881 verified intracranial growths. In an extremely large proportion (73.6 per cent) of patients having tumors confined to or chiefly compressing the occipital lobe, fields of vision show a contralateral, homonymous hemianopsia in which the central fibers remain unaffected. This is particularly true of meningiomas situated at the posterior end of the occipital lobe. An upper quadrantal homonymous defect of the visual fields was not disclosed in any case of the series, and the authors therefore regard its occurrence as rare in strictly occipital tumors. Visual hallucinations occurred in six patients (15 per cent) before operation for tumor removal. Careful investigation of these supports the idea that complex "formed" images are not provoked by occipital tumors. The differential diagnosis between temporal and occipital tumors may be impossible without ventriculography. The high incidence of spared central fibers, together with the rarity of upper quadrantal defects in the latter, are helpful, since bisection of the macula and upper quadrantanopsia are frequent in the former. Other differential features are the relatively greater tendency to the true quadrantic form (bounded by the horizontal meridian) in defects due to temporal lobe lesions, and their greater incongruity as compared to those due to tumors of the occipital lobe.

Syphilis of Nervous System in the Sudanese—Hewer reports the results of a neurologic survey of 400 syphilitic Sudanese. Routine examination of the cerebrospinal fluid showed a high incidence of abnormality. Clinical nervous disease was present in 67.5 per cent, it consisted of gummatous or vascular lesions in most cases, and there was only one that was possibly a primary optic atrophy. In the discussion the author suggests that the absence of parasyphilitic infections is due to an acquired cell immunity, associated with an allergic state, and the occurrence of such a reaction is interpreted as a stage in the development of syphilis in the community.

British Journal of Dermatology and Syphilis, London

44 521 568 (Nov.) 1932

- Alleged New Phase in Early Syphilis E T Burke—p 521
New Phase in Early Syphilis Reply to Dr Burke J A Drake and M S Thomson—p 534
*Lupus Sarcoma Fatal Case W J O'Donovan—p 538

44 569 614 (Dec.) 1932

- Parapsoriasis J M H MacLeod—p 569
Note on Parapsoriasis H MacCormac—p 576
Development of Callosities, Corns and Warts A Whitfield—p 580

Lupus Sarcoma—O'Donovan reports the case of a woman dying at the age of 59 of sarcoma cutis, in which the malignant growth appeared in a lupus scar of long duration that had been heavily treated with roentgen rays, and who for about two months before death complained of weakness, pain below the heart and shortness of breath. There was fluid in the right thoracic cavity. The fluid showed leukocytes and endothelial cells. The culture was sterile. Roentgenograms showed secondary deposits in both lungs. The author has not heretofore observed a similar case in practice or in the literature. He concludes that there is a recognized close similarity in the clinical development of occupational tar and roentgen carcinomas, experimentally both carcinomas and sarcomas have been produced in animals by the application of the same irritant,

hence, as lupus carcinoma has increased in frequency since roentgen therapy was instituted, there was an antecedent probability that sarcoma might develop under similar conditions.

British Journal of Ophthalmology, London

16 705 768 (Dec.) 1932

- Anterior Dialysis of Retina Disinsertion or Avulsion at Ora Serrata J R Anderson—p 705
John Zachariah Laurence A Belated Tribute A Sorsby—p 727
Iridencicosis and Trap Door Iridectomy in Treatment of Glaucoma T H Butler—p 741
Hand Campimeter for Confrontation Test G Mackay—p 750

British Journal of Physical Medicine, London

7 153 172 (Dec.) 1932

- Radiotherapy Fever Induced by Short Radio Waves W Bierman—p 155
Hydrologic Methods in Treatment of Rheumatic Syndrome M B Ray—p 158
Effect of South African Climate on Pulmonary Tuberculosis and Pre-tuberculous Cases P Allan—p 161

Journal of Tropical Medicine and Hygiene, London

35 353 368 (Dec. 1) 1932

- *Hexylresorcinol in Treatment of Ancylostoma Duodenale Infection A G Biggam and P Ghalioungui—p 353
Anaeromyces Bronchitica Its Relationships and Possible Significance in Pulmonary Affections E T Thompson—p 354
Epidemic and Endemic Yellow Fever W H Hoffmann—p 359

35 369 384 (Dec 15) 1932

- Blood Grouping of Central Australian Aborigines, 1931 Series J B Cleland—p 369
Principles of Early Treatment of Tropical Disease, with Especial Reference to Malaria in Natal F G Cawston—p 371
Some Little Known Micrococci A Castellani—p 372
Detection of Lactosuria by Bacterial Method of Castellani and Taylor T Standing—p 375

Treatment of Ancylostoma Duodenale Infection—The results obtained by Biggam and Ghalioungui in a series of fifty carefully controlled cases of Ancylostoma duodenale infection by the administration of hexylresorcinol in an attempt to eradicate this infection were found to be unsatisfactory, only twenty-six patients being cured, even when repeated administrations of as much as 2 Gm doses had been employed and great care exercised in the limitation of the diet. No serious toxic symptoms were observed to occur among these cases. The difference in results obtained in the authors' series of cases compared with those of the American observers may be accounted for by the fact that in Egypt one is dealing with Ancylostoma duodenale and not Necator americanus. Hexylresorcinol can, however, be of definite value in cases of severe ancylostoma anemia in which debility is marked, if one uses it as a preliminary method of treatment with a view to diminishing the intensity of the infection and improving the condition of the patient prior to the employment of other more potent drugs.

Lancet, London

2 1317 1368 (Dec 17) 1932

- Surgical Disorders of Urinary Tract in Children Report of Twenty One Consecutive Surgical Cases H P Winsbury White—p 1317
*Treatment of Nervous Disorders Accompanying Anemia by Intensive Iron Therapy W Sargent, with remarks by F S Langmead—p 1322
Albuminuria in Pregnancy and Its Treatment J V O'Sullivan—p 1326
Toxemia of Pregnancy Treated with Alkalis and Calcium A Daly and W C Armstrong—p 1328

Iron Therapy in Nervous Disorders of Anemia—Sargent treated nine patients showing varying degrees of nervous disorder following anemia by large doses of iron. After an initial period of from two to three months on 150 grains (9.75 Gm) of pills of ferrous carbonate each day, it was found advisable to continue with at least 40 grains (2.6 Gm) daily, if a relapse was to be avoided. All the patients improved in from three weeks to one month from the commencement of treatment. Six cases were classed as subacute combined degeneration, and the remaining three showed evidence of severe posterior column loss or peripheral neuritis. In five, iron either restored or maintained the blood count, thus demonstrating the existence of subacute combined degeneration and peripheral neuritis with simple achlorhydric anemia. In cases accompanying a primary anemia, in which liver treat-

ment had previously been given, substitution of iron for liver led to a fall in the blood count, but an improvement in the nervous phenomena occurred. The author reports five cases in which the degree of nervous involvement complicating the anemias bore no relation to the severity of the anemia and the nervous phenomena steadily improved if large doses of iron were given, despite a rising or falling blood count. Therefore it seems not unreasonable to surmise that the various nervous phenomena associated with alimentary disturbances may be found to fall into one large group and may respond to iron therapy. It is his intention, when possible, to put this hypothesis to the test. He has not, of course, overlooked the fact that the results obtained may not be due entirely to the large doses of iron but to some impurity in the ferrous carbonate preparation.

Medical Journal of Australia, Sydney

2 735 764 (Dec. 17) 1932

- *Results of Operative Treatment of Chronic Glaucoma E. L. Gault.—p 735
- Abortion. R. Worrall.—p 739
- Pathologic Fractures. P. L. Hipsley.—p 743
- Blood Transfusion Apparatus for Transfusion of Citrated Blood E. H. Stokes.—p 746
- Eucalyptol or Cineole. J. MacPherson.—p 750

2 765 794 (Dec. 24) 1932

- Fayus in Mice and Men J. I. Connor.—p 765
- Anesthesia from General Practitioner's Point of View M. C. Lidwill.—p 767
- Laryngeal Diphtheria G. C. Willcocks.—p 770
- Simulation of Pituitary Disease by Intracranial Lesions H. R. Dew.—p 771

Chronic Glaucoma.—According to Gault, there is no such disease as simple chronic glaucoma without increased intra-ocular pressure. There is no risk of precipitating blindness if operation is undertaken in advanced cases with a field approaching closely the fixation point. No lasting benefit can be expected from miotics and general treatment alone. One may regard operation as curative, or at least one may assert that it offers a means of greatly delaying the progress of the disease in a large majority of cases and that it should be undertaken as soon as a diagnosis has been made.

South African Medical Journal, Cape Town

8: 755 790 (Dec. 10) 1932

- Epidemiology of Meningitis in South Africa. D. Ordman.—p 757
- Statistical Rating of Insurance Risks J. P. MacLaren.—p 765
- Insurance Value of One or Both Eyes or Limbs L. J. Johnson.—p 770
- Sulphur as Prophylactic in Malaria W. M. Montgomery.—p 771
- Modern Developments in Treatment and Diagnosis II. Radiology and General Practitioner F. H. Domisse.—p 772

Tubercle, London

14 97 144 (Dec.) 1932

- Investigations on Catalans F. Gottdenker.—p 97
- Acute Silicosis. P. Heffernan.—p 109
- Activity in Pulmonary Tuberculosis as Determined by Comparative Study of Roentgenograms, Blood Sedimentation and Leukocytic Reactions J. Duffy.—p 113

Japanese Journal of Gastroenterology, Kyoto

4 231 324 (Dec.) 1932

- Studies in Photodynamic Hemolytic Action of Bilirubin Report III Influence of Added Substances on Photodynamic Hemolytic Action K. Sasaki.—p 231
- Id. Report IV Microscopic Observations of Photodynamic Hemolytic Action and Its Time Relation K. Sasaki.—p 244
- Experimental and Clinical Investigation on Affinity of Bilirubin for Erythrocytes Report III Affinity for Erythrocytes of Various Heterogeneous Animals and Comparative Clinical Observation on Affinity for Erythrocytes of Jaundiced and Normal Subjects. K. Sasaki and T. Maeda.—p 255
- Behavior of Sugar Toward Secretion of Gastric Juice. M. Matsuyama.—p 262
- Influence of Introduction of Glucose into Intestine on Secretion of Gastric Juice. M. Matsuyama.—p 273
- Statistical Investigation of Patients Operated on for Cholelithiasis. H. Yagata.—p 280
- Experimental Studies on Relation Between Liver Function and Amounts of Glycogen Fat and Nitrogen in Liver Reports I to VII T. Hayashi.—p 287
- Acquisition of Antitoxic Character of Liver S. Kimura and I. Isoda.—p 298
- Influence of Fat Soluble Vitamin on Amount of Cholesterol Bodies in Blood in Rabbits S. Kusaka.—p 304
- Anatomic Histologic Studies in Rabbits to Which Excess of Fat Soluble Vitamin Was Administered. S. Kusaka and T. Maruno.—p 312

Bull et Mem de la Soc Med des Hôpitaux de Paris

49 128 (Jan 23) 1933

- Slow, Malignant Endocarditis of Interventricular Communicating Orifice. V. Audibert, A. Raynaud, E. Giraud Costa, M. Audier and C. Mattei.—p 7
- Fatal Case of Spirochaetosis Icterohaemorrhagica. M. Bariety and M. Deparis.—p 10
- Suppurative Meningitis in Anthrax Case Hamant, Drouet, Chalnot and J. Simonin.—p 14
- Nondiabetic Generalized Xanthoma in Patient with Albuminuria. E. Schulmann and G. Levy Coblenz.—p 15
- *Clinical Sign of Calcification of Pericardium Protodiastolic Pericardiac Vibration C. Lian, M. Marchal and J. Pautrat.—p 20

Calcification of Pericardium.—Under the name protodiastolic pericardiac vibration, Lian and his associates describe a heart sound the presence of which should lead the clinician to suspect calcification of the pericardium and to practice a minute roentgenoscopic examination to confirm the suspicion. The authors have heard this sound in two cases in which a pericardiac calcification was roentgenologically determined. It is a strong, vibrating sound, much louder than the normal heart sounds, with which it constitutes a rhythm of three beats. It is produced immediately after the second sound, its maximum intensity is at the apex or at the juxtaphoid region and it is heard in the entire precordial region and up to the suprasternal fossa in auscultation of the aorta, and even in the supraclavicular region in auscultation of the subclavian artery. It is differentiated from the sound of a protodiastolic gallop by its intensity and vibration, and from the third heart sound, also a protodiastolic phenomenon, by its greater strength, vibration and constancy. The reduplicated second sound of mitral stenosis, if it is loudest in the region of the apex, may be confused with the pericardiac vibration although its vibrancy is less accentuated, and the differential diagnosis may depend on roentgenologic examination. In discussing roentgenologic diagnosis the authors say that the pericardiac calcifications are best seen in the left anterior oblique position, examination in several positions permits differentiation from pulmonary or pleural calcification, even if the cardiac pulsations have been transmitted to them.

Riforma Medica, Naples

48 1900 1938 (Dec. 10) 1932

- *Meltzer-Lyon Test and Cholecystography in Diseases of Biliary Tract. D. Santorsola and V. Gandolfi.—p 1903
- Some Cases of Traumatic Lesions of Femur P. Cammarano.—p 1908
- Serotherapy in Acute Peritonitis A. Pellegrini.—p 1914
- *High Grade Secondary Anemia Due to Mercury Poisoning Case. G. Dalla Torre.—p 1926

Diseases of Biliary Tract.—Santorsola and Gandolfi cite their experiences with the combined Meltzer-Lyon drainage and cholecystography in four groups of patients. Group I comprised eight cases of altered function of the biliary excretion with lack of B bile, corresponding to serious cholecystic, pericholecystic and adhesive lesions, with the presence of calculi in the common bile duct and in the cystic duct. In group II the Meltzer-Lyon test was not reliable because of the existence of gastroduodenal lesions. In group III (consisting of twenty patients, fourteen of whom were operated on) there was a correspondence between the Meltzer-Lyon test and the cholecystographic reports. Group IV consisted of two cases in one case the presence of a large echinococcus cyst of the liver was enough to justify an abnormal cholecystogram, in the other the walls of the gallbladder did not present considerable lesions and it was probable that the dye was collected and concentrated in the gallbladder, which, hindered by the initial inflammatory processes of the mucosa (strawberry gallbladder), could not respond to the stimulus exercised by a solution of magnesium sulphate. The authors state that the cholecystography was greatly facilitated by oral administration of the dye (tetraiodophenolphthalein) in preference to intravenous injection. They found that a gallbladder shadow, modified with a certain regularity after a normal lapse of time, signified a normal gallbladder, and that a failure to undergo change in form signified a nonfunctioning gallbladder. In the presence of the gallbladder shadow, cholecystography is still capable of revealing lesions of the gallbladder even though these do not interfere with the functional capacity of the gallbladder, in which case the degree of intensity and the uniformity of the shadow and its contours constitute the criteria. Drainage with the Meltzer-Lyon test is often

and that the twenty-four hour quantities of urine were small. This was the case also in patients in whom there was no loss of fluid by other channels (vomiting, sweating, diarrhea). From this the author concludes that oliguria is one of the most frequent symptoms of cerebral tumor, although other reports on brain tumors do not mention it. He thinks that oliguria is the result of increased cerebral pressure, because, following trepanation and pressure decrease oliguria may change even into polyuria and the thirst increases. The point of attack of the intracranial pressure is probably in the mesencephalic-hypophyseal system, and the author assumes that the oliguria of brain tumor is a disturbance in the water exchange of mesencephalic-hypophyseal origin. Edema is usually absent in this form of oliguria. The author advises that all patients presenting oligodipsia, oliguria or disturbances in the humoral-histogenic water exchange should be examined for the presence of mesencephalic-hypophyseal disturbances.

Appendicitis and Sympathetic Nervous System in Gynecology—Wiesbader maintains that in disturbances of the appendix disappearing completely after surgical treatment, although the appendix shows only slight changes, the sympathetic nervous system is involved. Changes in the vermiform appendix may lead by way of the sympathetic innervation to disturbances in the menstrual cycle which disappear again following removal of the appendix. The author made observations on fifty cases. Operative treatment was resorted to in thirty and conservative treatment in twenty. Appendicitis symptoms existed in seventeen of the thirty cases and the operation revealed only slight changes, dysmenorrhea and appendical lesions existed in seven other cases, and there were menstrual disturbances together with changes in the appendix in the remaining six. The other twenty patients received conservative treatment in the form of a spasmolytic medication. In these cases, spastic conditions in the ileocecal region and in the appendix predominated, and the author thinks that in such instances spasmolytic medicaments will give the best results.

The Meinicke Clarification Test in Cerebrospinal Fluid—According to Jehn, the Meinicke clarification test on the cerebrospinal fluid is a method that is easy to perform and consequently suitable for small laboratories, and in reliability it is hardly inferior to that of the Wassermann test. Its sensitivity is not noticeably superior to that of the Wassermann test. The author thinks that the nonspecific reactions of the Meinicke clarification test in meningitis, particularly in tuberculous meningitis, are insignificant. The test makes possible the differentiation of the form of the syphilitic disturbance of the central nervous system with small quantities of cerebrospinal fluid. The fact that only a small amount (from 0.75 to 1 cc) of fluid is required is a great advantage of the Meinicke clarification test. The author states that he gave especial attention to the outcome of the test in nonsyphilitic disorders of the central nervous system and he found that it was always negative.

Medizinische Klinik, Berlin

29 107 140 (Jan 20) 1933 Partial Index

Diseases of Pancreas and Progress in Their Operative Treatment
W. Sebenius—p 107

*Significance of Hemato-Encephalic Barrier H. Hoff—p 112
Therapy of Schizophrenia O. Lampl—p 115

*Aspects of Syphilitic Thrombophlebitis A. Schick—p 116

*Acute Poisoning with Neoarsphenamine with Lethal Outcome in Addison's Disease A. Hellfors—p 117

Present Status of Serotherapy in Diphtheria F. von Bormann—p 118

Significance of Hemato-Encephalic Barrier—On the basis of the present status of research, Hoff assumes that the cerebral fluid is formed by the choroid plexus, the meningeal vessels and the secretions of the lymph spaces of the brain, that it is resorbed by the arachnoideal villi, by the meningeal veins and by the sheaths of the nerves, and that its formation is governed by the physical laws of dialysis and infiltration. However, these alone are not sufficient and a specific secreting mechanism cannot be entirely excluded. Pharmacologic substances that are introduced directly into the cerebral fluid pass immediately into the blood, but only a few substances pass from the cerebral fluid directly into the central nervous system. This indicates that in addition to the hematocerebral

fluid barrier there is a second barrier, which protects the brain against substances passing the hematocerebral fluid barrier, and the author states that this is the glia wall that surrounds the brain. Thus the hemato-encephalic barrier consists, in addition to the hematocerebrospinal fluid barrier, of a glia wall. In this glia wall the microglia have a selecting role, but the main decision as to whether substances are to enter the cerebral cells takes place in the cell membranes themselves. Only a small part of the nutritional substances required by the brain reaches it by way of the cerebral fluid. But although only few nutritional and pharmacologic substances reach the brain by way of the cerebral fluid, the hematocerebral barrier is penetrated by infectious agents. Most of the nutritional substances are carried from the blood by way of the microglia and the cell membrane into the cerebral cell. Consequently, if the brain is to be influenced by a pharmacologic substance, the main object should not be to break through the hematocerebral fluid barrier (which can be done only by crude and not entirely harmless means) but to penetrate the glia wall gradually and to open the cell membrane of the ganglions.

Syphilitic Thrombophlebitis—Schick reports the clinical history of a patient with thrombophlebitis of the left leg. The painful, cordlike hardening extended from the popliteal fossa to the tendo calcaneus. This phlebitis had been refractory to all therapeutic measures for nine months. The anamnesis and the seroreaction finally revealed that the condition was of a syphilitic nature. Antisyphilitic therapy cured it within a comparatively short time. The case is noteworthy because the phlebitis developed during the tertiary stage of syphilis, whereas syphilitic inflammation of the veins usually occurs during the secondary stage.

Fatal Poisoning with Neoarsphenamine in Addison's Disease—Hellfors relates the case of a woman, aged 42, who, following operative removal of an ulceration of the labia minora, developed symptoms of icterus, some of which disappeared following treatment. Because syphilis was suspected the patient was given an injection of neoarsphenamine. This was followed by a severe circulatory collapse, from which the patient died twelve hours later. The postmortem examination revealed tuberculosis of the suprarenals with complete caseation. The case is noteworthy because, in spite of the complete destruction of both suprarenals, there were no clinical signs of Addison's disease, and because of the fatal effect of the single, small (0.15 Gm) dose of neoarsphenamine. The author points out that the arsenic may have caused a breakdown of the last remnant of the suprarenal system, and thus the detoxifying influence of the suprarenals was entirely abolished. He reports this case to call attention to the fact that arsphenamine therapy is fraught with danger in patients with Addison's disease and states that, although the German medical literature has given little attention to this problem, it has been repeatedly discussed in other literatures and that it has been pointed out that the administration of epinephrine is helpful in preventing such undesirable complications.

Munchener medizinische Wochenschrift, Munich

80 83 124 (Jan 20) 1933

Symptomatic Interventions on Nervous System, Particularly Those for Prevention of Pain O. Foerster—p 83

*Vitamins and Hormones J. Kühnau and W. Stepp—p 87

Heboidophrenia J. Lange—p 92

*Fecal Concretions in Vermiform Appendix L. Aschoff—p 96

Calcifications of Connective Tissues of Heart in Roentgenogram G. W.

Parade and F. Kuhlmann—p 99

Research on Pneumococci and Specific Therapy of Pneumonia P.

Martini—p 100

Vitamins and Hormones—Kühnau and Stepp discuss the relations between vitamins and hormones. Recently it has been shown that the animal cell participates in the preparation of vitamins and that the exogenic origin, formerly assumed as self evident, can no longer be considered a characteristic quality of the vitamins. There are interrelations and transitional states between vitamins and hormones. The knowledge about the interrelations between vitamins and hormones has been advanced by chemical studies and by biologic experiments. It has been found that the relation between fat soluble vitamins and the hormones of the gonads is based on their chemical relationship. The authors illustrate this with structural formulas. They cite biologic observations on the correlations between vitamins A and B, the thyroid and iodine

metabolism Vitamin B influences thyroidal action, and under normal conditions there seems to be a relation between the suprarenal cortex, the thyroid and vitamin B The authors discuss the influence of vitamins A and E on the sexual functions, the relations between the anterior lobe of the hypophysis and vitamin E, and the synergism of vitamin D and the hormone of the parathyroids

Fecal Concretions in Vermiform Appendix—Aschoff discusses the pathogenesis of the fecal concretion of the vermiform appendix He evaluates the significance of fine hairs as determining centers of fecal concretion and the part played by fecal impaction, and he points out that the etiologic significance of the fine hairs is not fully understood as yet and that it is not even known whether the fecal concretion develops in the appendix or is forced from the cecum into the appendix In this connection he discusses the function of the vermiform appendix and the physiologic stasis of feces and shows that the movements of the appendix differ from those of the other portions of the intestine He describes his observations on the oxydase reaction of the fecal matters and of the layers of mucus Since the concretions of the vermiform appendix consist largely of mucous layers, he thinks that inflammatory conditions in the appendix are a factor in the development of the mucous layers, because inflammation results in excessive secretion of mucus As the bacteria found in the mucous layers of the appendix are those that occur in the appendix, the author concludes that the fecal concretion causes an attack of appendicitis not as a result of its mechanical action but rather because its mucous covering favors the growth of microorganisms that, under certain conditions, reach such a degree of virulence as to provoke an attack

Wiener klinische Wochenschrift, Vienna

46: 65 96 (Jan 20) 1933

- What Does Modern Surgery Owe to Modern Times? P Walzel—p 65
*Hyperglycemia and Glycosuria in Coronary Thrombosis. D Scherf—p 69
*Influence of Atmospheric and Climatic Factors on Organism of Children Curative Significance. L Moll—p 71
Therapy of Schizophrenia. H Kogeler—p 73
Chlorine Gas in Treatment of Chronic Suppurations of Mucous Membrane of Middle Ear. F Mossbock—p 76
Treatment of Chronic Bilateral Diseases of Kidneys R Fleckseder—p 77
Diagnosis and Therapy of Gonorrhea in Men A Wiedmann—p 78
Therapy of Genital Hemorrhages During Puberal Period O Reichelt—p 81

Hyperglycemia and Glycosuria in Coronary Thrombosis—Scherf calls attention to the frequent occurrence of a temporary hyperglycemia and glycosuria following coronary thrombosis He found these two signs missing in only two of eight cases In discussing the significance of hyperglycemia and glycosuria (rarely also acetoneuria), he points out that they cannot be the result of the intense pain only, nor merely the accompanying manifestations of the shock, because they were observed in patients without shock and with still high blood pressure Glycosuria of short duration was even observed in a patient in whom the coronary thrombosis was painless The author thinks that, in addition to other factors, the changes in the regulation of blood pressure are of great significance, since glycosuria was present at a time when the blood pressure was still high Moreover, the resorption of the decomposition products of protein, the high carbon dioxide content of the blood, and pharmaceuticals, such as morphine, caffeine and epinephrine may be causal factors in the development of hyperglycemia

Climatotherapy of Children—Moll recommends sea climate for children with chronic catarrhs of the upper air passages and for those with chronic cough, coryza, pharyngitis, tonsillitis or eczema, for children in whom tuberculous infection has taken place and in whom it becomes manifest as an enlargement of the bronchial glands and for those with extrapulmonary tuberculous infection either of the skin or of the joints Sea climate has curative value in children convalescing from severe bronchitis pneumonia or pleurisy Neuropathic manifestations, with the exception of the severe forms, constitutionally weak children and those with late rickets are also benefited by sea climate However sojourn at the seashore is not advisable in active tuberculosis, renal disease, articular rheumatism otitis media and cardiac defects The author recommends mountain climate particularly for anemic children,

because the reduced oxygen tension of the mountain air stimulates blood formation Sojourn in the mountains is beneficial in beginning pulmonary tuberculosis, but only in mild cases It is essential that the exposure to sunshine be carefully regulated Mountain climate is also advisable for children with tuberculosis of the glands or bones Constitutional weakness and retarded development is favorably influenced by mountain climate as well as by sea climate Children who, as the result of endocrine disorders, are obese or are inclined to laziness, and children with puberal disturbances should be sent to the mountains Those with bronchial asthma require a prolonged stay in the mountains The warm high mountain climate is beneficial in mild cases of chronic articular rheumatism and in nephritis For children who do not tolerate the strong climatic change, a mild inland climate is advisable in preference to the stimulating mountain or seashore climate A warm inland climate may be considered for those children who have renal disorders, articular rheumatism and neuropathic and psychopathic disturbances, such as chorea, epilepsy and paralysis

Zentralblatt für Chirurgie, Leipzig

60: 193 240 (Jan 28) 1933

- *New Point of View in Diagnosis and Treatment of Cicatricial Stenoses of Esophagus R Demel—p 194
Method of Forming Intestinal Fistula with View to Its Later Spontaneous Closure. D Sarafoff—p 198
Early Diagnosis of Carcinoma W Mayer—p 212

Cicatricial Stenoses of Esophagus—The question of permeability of a cicatricial esophageal stenosis in the past was determined by attempts to pass sounds or filiform bougies The roentgenologic method of investigation introduced at a later date was easier for the patient and at the same time rendered more reliable information regarding the degree of stenosis The chemical test, introduced by Lotheissen, gave even more exact information In this test, the patient is made to swallow a small amount of a 2 to 5 per cent solution of ferrous lactate To the gastric contents, obtained five minutes later through the gastrostomy opening, are added a few drops of a solution of potassium ferrocyanide In the presence of the smallest amount of ferrous lactate, a bluish discoloration takes place The author points out that a stricture may be impassable from above but passable from below In cases in which the chemical test was negative there was no alternative to the difficult many-stage plastic procedures on the esophagus by the anterior thoracic route With the introduction of the electrolytic sound, the indications for operative intervention were still further reduced The method conceived by E Boeckel was further developed by Lotheissen of Vienna It consists in the introduction through an esophagoscope of a copper wire ending with a screw, to which a metallic olive can be attached The sound is connected with the negative pole of an uninterrupted current, while the positive pole is applied to the patient's back A current of from 2 to 5 milliampères is employed and the treatment is continued for not more than five minutes The aim of the treatment is to induce hyperemia and to render the scar moist, thus making it more yielding to the sound After some time the sound passes the obstruction without the use of any force This occurs in some of the cases in the course of the first treatment, in others at the second or third treatment To avoid burning of tissues, the treatments are given from five to seven days apart As soon as the sound passes into the stomach, the end of it is brought out through the gastrostomy opening and a continuous sounding is made possible Demel reports two cases of a supposedly complete stenosis rendered permeable by this method He believes that truly impassable strictures are rare The employment of the electrolytic sound, in his opinion, will still further reduce the number of operative cases

Med Parasitologiya i Parazitarnye Bolezni, Moscow

1 117 195 (Nos 3-4) 1932 Partial Index

- Opisthorchis Infestation (Siberian Liver Fluke) in Northern Tobolsk. K I Skryabin V P Podypolskaya N P Shikhobalova and Z G Vasilkova—p 120
Biologic Data Concerning Opisthorchis Felinus (Revoluta) and Treatment of Opisthorchosis. N N Plotnikov and L K Zerkhaninov—p 130
*Symptoms and Treatment of Opisthorchosis. V I Kondratiev—p 140

Opisthorchosis—On the basis of his clinical observations on the Siberian liver fluke disease in man, Kondratiev makes the following deductions 1 Opisthorchis felinus (liver fluke)

produces definite anatomic and functional changes in the liver, the gallbladder and the biliary tracts, at the same time influencing the general condition and the nervous system of the host 2 A moderate eosinophilia is frequently observed This, however, may be absent in lowered states of health 3 Injections of emetine hydrochloride improve but do not cure the condition Emetine has a cumulative effect which cannot be foretold because of idiosyncrasy to the drug 4 Owing to the wide spread of liver fluke infestation in western Siberia, patients with symptoms referable to the liver and the gallbladder should be examined with particular regard to the presence of ova in the feces and in the duodenal contents

Acta Chirurgica Scandinavica, Stockholm

71 1548 (Dec. 14) 1932 Partial Index

- *Ileus in Liver Cirrhosis W Anschütz—p 32
- *Pancreatic Tumor with Hypoglycemic Status Epilepticus T H Bast, E R Schmidt and E L Seeringhaus—p 82
- Cholecystography in Cases of Impaired Liver Function H Blomström and C Sandström—p 135
- What Part is Played by Acute Appendicitis in Causation of Sterility in Young Girls and Women? P Bull—p 155
- Case of Generalized Osteitis Fibrosa Improved After Removal of Parathyroid Tumor O Chievitz and H C Olsen—p 172
- Traumatic Lesions of Thoracic Organs and Abdominal Symptoms P N Hansen—p 294
- *Tuberculous Empyema C A Hedblom—p 311
- A Study of the Arteries in Two Cases of Raynaud's Disease J Ipsen—p 482

Ileus in Liver Cirrhosis—In a discussion of the diagnosis of ileus, Anschütz emphasizes the importance of the metallic clinking intestinal sounds and of the roentgenologic demonstration of fluid levels in the abdomen The latter may be considered pathognomonic In addition to the well known forms of ileus, he describes a rare form heretofore not mentioned in medical or surgical texts, namely, that of ileus in liver cirrhosis His experience with this form embraces a group of six cases verified at necropsy and of two cases not so verified The author points out that the onset was acute in only one case, that the pain symptom was not prominent and that the presence of liver cirrhosis was recognized before the operation in but one instance Ascites and intestinal distention obscure the presence of an enlarged liver or spleen All the patients operated on died The nature of ileus is probably of reflex origin The differential diagnosis is difficult unless one bears in mind the possibility of a liver cirrhosis Operation is contraindicated Opinion and atropine are valuable in the treatment

Pancreatic Tumor with Hypoglycemic Status Epilepticus—Bast and his associates report a case in which a man having epileptiform seizures for two years was found to be suffering from pronounced hypoglycemia The hyperinsulinism was not produced as the immediate result of overstimulation of the pancreas by food Relief from all symptoms was afforded by frequent feedings At operation a tumor was removed from the tail of the pancreas Detailed study of this mass suggests that it may have to be considered a carcinoma Various types of cells are shown in photomicrographs The abnormal cells include some which have a partial resemblance to beta-cells The atypical cells are to be correlated with the atypical occurrence of symptoms The diffuse distribution of abnormal cells may be associated with the persistence of symptoms for two weeks after removal of the tumor Relief remained satisfactory eight weeks after operation

Tuberculous Empyema—According to Hedblom, tuberculous empyema may be primary or secondary to a pulmonary lesion It is proved to be tuberculous by the microscopic demonstration of tuberculosis bacilli in the exudate, by culture, by animal inoculation and by the demonstration of tubercles in the pleura by thoracoscopy (Jacobæus) or by biopsy It may be secondarily infected by pyogenic bacteria A complicating bronchial fistula usually results in secondary pyogenic infection Thoracotomy drainage always results in secondary infection The aim of treatment of a primary tuberculous empyema, not secondarily infected with pyogenic organisms, is obliteration of the cavity by reexpansion of the lung This may be accomplished in whole or in part by substituting a negative tension pneumothorax for the pyothorax If a residual cavity persists, it may be obliterated by an extrapleural thoracoplasty

In case of a tuberculous empyema sterile to pyogenic culture, complicating an active pulmonary tuberculosis on the same side, the aim is to obliterate the cavity by an extrapleural thoracoplasty in several stages following aspiration of the pus A tuberculous empyema secondarily infected with virulent pyogenic organisms requires immediate adequate drainage to combat the pyogenic infection Closed drainage (Bülau) with frequent irrigation of the cavity is tolerated by the patient far better than rib resection and open drainage, but in case there is a large bronchial fistula open drainage may be necessary After the secondary infection is controlled, a thoracoplasty is usually necessary to obliterate the cavity in the primary type, and in the secondary type the pulmonary tuberculosis and empyema furnish a double indication for it A secondary resection of the parietal pleura usually is necessary to the obliteration of an infected residual cavity In a series of 143 cases of tuberculous empyema, sixty-one patients were treated by aspiration, irrigation and drainage, and twenty-two died (36 per cent) Eighty-two were subjected to radical surgical treatment, twenty-three of these had no secondary infection and the cavity was obliterated in eighteen (74.7 per cent), there was no mortality Fifty-nine had secondary infection, the cavity was obliterated in thirty-eight (64.4 per cent), but a sinus persisted in nineteen, twelve died (20 per cent) The mortality in tuberculous empyema is due in a large measure to active tuberculosis and to a virulent infection, or to their combined effect Cavities should be obliterated early to prevent infection When present, the first objective should be to combat it

Norsk Magazin for Lægevidenskapen, Oslo

94 1128 (Jan) 1933

- *Cultivation of Tubercle Bacilli from Tissue, Especially from Lupus Vulgaris N Danbolt—p 1
- Auricular Flutter on Traumatic Basis A Jervell—p 14
- *III Continued Investigations on Mineral Metabolism During Pregnancy and Lactation Osteoporosis—Rickets K U Toverud and G Toverud—p 18
- *Diagnosis and Treatment in Diseases of Iliosacral Joint J Hald—p 32
- Apoplectic Disorders of Sensitivity K Zeiner Henriksen—p 49
- Lead Poisoning in Shipyard O Lorange—p 65

Cultivation of Tubercle Bacilli—Danbolt cultivated tubercle bacilli directly from tuberculous tissue by Lowenstein's sulphuric acid method in thirty-four out of thirty-six cases (thirty of lupus vulgaris and six of scrofuloderma), or 94.5 per cent Attempts to cultivate tubercle bacilli from excised tissue in sixteen patients with skin diseases considered related to tuberculosis were unsuccessful Of the nineteen cases of lupus vulgaris in which simultaneous inoculation in guinea-pigs was done, sixteen gave positive results both on direct cultivation and on inoculation He says that the direct cultivation of tubercle bacilli according to Lowenstein can give quicker results, is more easily carried out in the clinic, and is less expensive than inoculation in guinea-pigs, and can partly replace, partly supplement the latter, as there are strains of tubercle bacilli that are pathogenic to men but not to guinea-pigs

Mineral Metabolism During Pregnancy and Lactation—The Toveruds found that a cod liver oil dosage, though fully effective and present in sufficient quantity during fetal life, lactation and further growth, cannot protect the bone system from undergoing an extensive osteopathic process when the quantity of minerals in the diet is low

Diseases of Iliosacral Joint—Hald says that after the age of 30 the iliosacral joint shows a rising percentage of pathologic changes and tendency to spontaneous ankylosis The most common cause of iliosacral diseases is either trauma or chronic infection The most constant observations are tenderness along the inferior sacro-iliac ligament and the tuberosity of the ischia and pain on compression of the pelvis Bending while standing is greatly limited Radiating ischial pain always suggests a possible disease of the iliosacral joint Positive roentgen results are seen in only 2 or 3 per cent of the cases In acute iliosacral diseases, treatment is conservative In chronic cases a successful arthrodesis may be the best treatment In early cases of tuberculous inflammation of the joint, operative treatment is possibly better than the conservative

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL 100, No 12

CHICAGO, ILLINOIS

MARCH 25, 1933

BASIC CONSIDERATIONS IN MINORITY REPORT OF COMMITTEE ON THE COSTS OF MEDICAL CARE

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Timeliness or untimeliness cannot, to my mind, be considered valid argument for the acceptability or the nonacceptability of a theory or of a social program. The advocates of the majority report of the Committee on the Costs of Medical Care those in professional ranks as well as those in the lay ranks, are fond of stressing the thought that the recommendations of the majority are a direct response to the needs of today and that they parallel to a remarkable extent today's social trends and tendencies. Attributing to this laudatory statement its full value, it is clear that the acceptability of the recommendations of the majority rests entirely, as far as this argument is concerned on the acceptability or the nonacceptability of today's trends and tendencies. If the latter are desirable or acceptable, then in all likelihood their outgrowth may participate in the acceptability or nonacceptability of the parent stem. Any argument based on the timeliness of the recommendations of the committee can lead us far afield into discussions of the spirit and the social theories of the age in which we are living.

We cannot help but question the meaning for the present and the significance for the future, of those subtle directional forces which today sway our social thinking, our governmental policies and the seethings of the popular mind. Each man who gives thought to these phenomena will probably form his own independent conclusions regarding the adequacy of any formulation. In this direction therefore, there lies little hope of national unanimity. Whatever one may conclude however, it must be granted that in one sense at least the recommendations of the committee mirror the day in which we live. They are essentially pragmatic, they are a direct answer to yearnings of the masses, a responding call to popular clamor. They are based on concepts of society, the functions of government, the state's responsibility for the individual, the governmental control of social factors and agencies, the federalization of the professional activities—on all of these and on many similar expressions of the popular mind of today.

CRITICISMS OF THE MAJORITY REPORT

For this reason I wish to emphasize the fact that the minority did not condemn wholesale and in toto the recommendations of the majority. The minor-

ity expressly states that, on many points discussed in the majority report, the nine members who signed the minority report are in complete agreement with the larger group. The minority says:

We are in full and hearty accord with the Majority in its recommendations for "The Strengthening of Public Health Services" and "Basic Educational Improvements," and we agree to some extent with the pronouncements of the Committee in respect to coordination of medical services.

The minority says, furthermore:

Some of the recommendations for coordination of medical services and for basic improvements in medical education are immediately practicable

and it considers itself "in sympathy with the recommendations of the majority which deal with the better training of specialists and their proper control."

It seems important to make it clear that the minority has not severed its interests from the report as a whole but has filed before the forum of public opinion its objections to a number of the attitudes and conclusions developed by the committee. I, for one, cannot accept the criticism made in several quarters that the money spent on the investigation now just concluded has been wasted, on the ground that even within the committee the studies failed to develop unanimity. It is argued by certain people from this fact that the report probably will fail more egregiously still when the people as a whole have taken hold of the committee's corporate thinking. My prognosis is rather that the fact that the minority report has been developed has really lent force and strength to the pronouncements of the majority. It must be obvious, after all, that to secure unanimity of opinion from as large a group as that represented by the majority is an achievement distinct in itself and worthy of the highest commendation. Besides, the fact that there has been a minority report might not only have been anticipated but even eagerly expected, since through this twofold report the recommendations of the majority have been much clarified and will thus serve better as a basis for a practical program. I see the values of the majority report for the following reasons:

- 1 It has made possible the accumulation of data second to those developed by no other investigation in any country known to me, in their value for an appreciation of medicine in our present-day civilization and our social status.

- 2 It has stressed the importance of the public health point of view and public health activities not only for their financial value to the community but also as programs for the effective betterment of our population.

- 3 It has presented the case for educational requirements in the practice of medical professions on the basis of well considered and well balanced statistics.

For the same reasons, I cannot bring myself to accept some of the criticisms that have been urged against the recommendations of the majority. It has been repeatedly said that the various studies have represented *ex parte* pleading, the innuendo being that the accumulated statistics represent efforts to prove theories through statistics rather than efforts to discover theory out of a mass of statistics. This procedure as a statistical method could be considered fully justifiable even if it were true that the committee had so used its statistics. But it is probably not true, even though the weaknesses of some of the policies advocated have not received the same measure of study as the successful ventures in several of the fields of medical practice. Besides, it cannot be regarded as a settled policy that one must always in social research investigate with equal thoroughness the contrasting manifestations of social tendencies. The methodology of social research can fully justify the separate study of any social manifestation that is expressible in factual data.

Lastly, I cannot accept the criticism implied in the remark that the committee has failed to reach a conclusion which embodies a single remedy for the present-day evils of medical practice. It seems to me that this comment, far from being an adverse criticism, is in reality a commendation of the committee's work, all the more valuable by reason of its spontaneity and its character as allegedly adverse criticism. The variety of recommendations shows that the committee has been fully aware of local and regional differences of time, place, social condition, economic status and the many other factors which are variable from day to day and from place to place and which make it necessary for the legislator, the student of contemporary social history, and the economist to modify programs, to invent substitutions and to create responses to new demands.

I therefore cannot withhold my admiration for the work of the committee as a whole. My strictures, such as they are, pertain, therefore, largely to some of the implications of the recommendations made by the majority.

MEDICINE AS A SELF-DETERMINING PROFESSION

As I see it, the two reports differ radically in their attitude on the self-determination of medicine, the minority report stressing the rights of the medical profession to this self-determination, and the majority report greatly modifying, if not completely obliterating, the profession's right to this self-determination. If the recommendations of the majority report prevail, it seems to me that medicine will have to give up its traditional policy of aloofness, its sempriestly character, its reputation for unselfishly contributed services, and its boast that it has withstood even the most severe and brutal inroad of commercialization.

The attitude of the minority favors self-determination and self-adaptation of medicine, the attitude of the majority favors, as I see it, the coercion of medicine through social stresses and economic need.

My concern, therefore, is first and foremost for the preservation of those standards of medical practice which have made medicine what it is today, a profession which, with all its defects and shortcomings, its failures and deficiencies, is still the most outstanding, the most successful, the most altruistic of the professions dealing with the physical life and the social environment of man.

It seems strange that in this day, when we have learned to regret the apotheosis of big business, of its methods and its accomplishments, we should seek to open doors thus far closed to the methods of big business. We have ceased to worship at the shrine of commercialization and now when this has been proved unsuccessful on an individual as well as on a national level, we seem suddenly to be urged on by the desire of introducing these discarded methods into the practice of medicine. Is not the procedure somewhat out of date? Ten years ago, perhaps even five years ago, enthusiasm for such methods might have been justified when it was customary to laud our culture and civilization as the outgrowth of our credit system, our financial programs, our sales appeals and our effective marketing. It would not have seemed strange in the moment of ascendancy of all these procedures if some "great leader" had taken medicine by the hand and attempted to lead it to the pinnacle of the sales curve, to the high plateau of the commodity distribution curve. In those days, the mounting graphs in the world of finance and business appealed to us with convincing cogency, but today things surely are different. We have seen these curves tobogganing into the depths. It is anachronistic to ask medicine today to pursue policies which have failed to carry out their promises and which have served their bankruptcy notice on our people.

We have learned the bitter lesson that organization by itself does not spell the redemption of mankind. Organization cannot create values, although it may redistribute them and render them more effective. The value of organization arises from the intrinsic value of that which is organized. Inadequate medical care by a group of individual physicians does not become adequate medical care when that group organizes. A hospital by itself in the midst of its community that is rendering fair service cannot have that service elevated to a higher level of excellence merely by reason of superorganization. Merely to call a hospital a medical center or even to effect its reorganization as a medical center does not change the status of the institution in its potential effect on the community. An insurance plan which rests for its effective value as a public servant on market conditions is not elevated into a stable concern merely because its beneficiaries now receive the tangible and intangible services rendered by the science and art of medicine. It seems to me that herein lies one of my own difficulties with the majority report, that the method of administration in rendering medical service has been overstressed to the neglect of the more basic need for a reform in the art and science of medicine itself. And in the same way it seems to me that the minority report, although it had to be hurriedly assembled, still comes closer to the medical needs of today by stressing the character of the service given to our people rather than the administration of that service.

I cannot accept the rejoinder that the committee was concerned rather with the economic costs than with the character of the service. The committee was aware of these implications and registered its awareness on the day when it voted to substitute the name "The Committee on the Costs of Medical Care" for the former name, "The Committee on the Cost of Medical Care."

Medicine itself as a self-determining profession must, if it is to fulfil its high character, develop those standards of service the need of which has become increasingly felt with the passing of time. Standards

imposed from without through the coercive force of extraneous agencies are probably no more effective in the domain of social betterment than external reform is in the domain of individual betterment. The best laws do not of themselves make nations better. The best rules are not a guaranty by themselves of an institution's excellence.

As a third consideration under this head, I should like to enter my protest against the fallacious argument that medicine must respond to the social trends of the day if it would remain alive and retain its force. Aside from the fact that those social trends are highly ambiguous, as pointed out before, the argument cannot stand of itself. It is true that medicine must adapt itself, but the first law of nature is not adaptation, it is self-preservation. It must not be assumed that that first and fundamental law can be violated only by a failure to adapt on the part of the organism. It can be violated just as disastrously by overadaptation. The paradox of adaptation lies precisely in this, that a measure of isolation spells continuance of life, exaggerated adaptation means death. The organism which adapts itself to environment with a measure of restraint and with a cautious degree of self-originated inertia is the organism which successfully meets the environmental stresses and persists in life. The organism, however, which merges with its environment, which is nonselective among the impinging forces, which reacts actively to every stimulus as if every stimulus were of necessity to be an effective stimulus, that organism is preparing its own doom. Even if the social trends of the present day were well defined and unidirectional, medicine could not afford to sacrifice its individual and aloof isolation as a distinctive social force without giving up the very qualities and prerogatives that have made it what it is. It may yield to economic pressures for a time, but in the end such yielding may force concessions which spell deterioration rather than development. We need not labor the point too much. It is clear, it seems to me, that the minority's stand on the uniqueness of medical service is a thought replete with the deepest significance for the future of medical care. We must recognize what the present day demands of medicine, but the medical man must know better than those who are not medical men whether those needs should be gratified by his own yielding to ephemeral phenomena.

PERSONAL RELATIONSHIP OF PATIENT AND PHYSICIAN

A second contrast in point of view as evidenced by the two reports refers to the concept of the medical profession itself. I myself cannot quite adjust the convictions concerning the practice of medicine engendered in my own mind through more than twenty years of intimate contact with the medical profession, with the points of view expressed in the majority report. In this connection one can be easily misled. It is strange that both the majority and minority reports seem to stress the question of personal relationship between physician and patient but when one examines the comments made on this personal relationship one cannot but note rather astonishing contrasts. It has been pointed out frequently that the mere wording of a principle is no guaranty of its specific application. Thus, for example both the insurance agent and the socially minded physician may use identically the same words in making a plea for the reduction of medical costs in favor of our middle classes. In the case of one the words may spring from a mind deeply filled with ideals

of public service, in the case of the other, they may issue from a mind immersed in self-interest.

With this in mind, we may now turn to an examination of the pronouncements on the personal relationship of patient and physician. The majority report says on this point (p. 30) "The preservation of a personal relationship between patient and physician is an essential element in safeguarding the quality of medical practice. This relation as the Committee defines it includes 'not only the privileged confidential communications of patient to physician which are recognized as inviolate by law, but also the relation involved in the communication of his medical history to any physician chosen by the patient and the continuing mutual responsibility between the patient and the physician.'" The majority report farther on says (p. 41) "There is nothing in any way mysterious in the relation between the physician and his patient. On the therapeutic side it is capable of completely objective analysis. As to those phases which are not strictly medical, it is of a piece with all satisfactory human relations involving as they do mutual patience, sympathy, understanding and confidence." The minority report, on the other hand, has something quite different to say on this point. It, too, stresses the importance of maintaining the personal relationship (p. 169) "By personal relationship is meant that bond of sympathy and interest in the patient's welfare on the part of the physician, confidence in the ability and integrity and discretion of the physician on the part of the patient, and mutual regard on the part of each for the other which cause the patient to disclose for the purpose of diagnosis and treatment the most private and confidential information concerning himself and his surroundings when necessary for proper diagnosis and treatment. The character and personality of the physician is a major factor in its development and in process of time and continued contact as patient and physician, a friendship and intimacy develop that assumes priestly characteristics on the part of the physician, the characteristics of the confidant and adviser in the most intimate personal and family relationships. It is an individual relationship, the product of character and personality, and cannot be transferred to a group or fostered by group practice."

It might be highly interesting to analyze in minute detail the expressed and implied points of view in these two quotations. Suffice it to say that to my mind the quotation from the majority report leaves much to be desired and much more to be questioned concerning the ethical and ideal requirements in the practice of medicine. I cannot, first of all, subscribe to the implication that the only or the chief element in the personal relationship between patient and physician is the safeguarding of confidential communications. The character of the implied contract in that relationship is much more comprehensive and overflows in its effects into ever so many basically human interests. Secondly, I am inclined to think that the committee's definition of this personal relationship was manufactured "ad hoc," since it is so carefully worded to make it possible to base on this definition many of the suggestions that flow from this basic principle. In the majority report itself this is clearly recognized, since the business relationship between the patient and the physician is not considered a necessary part of the personal relationship as defined above. As a third point, I might mention that I cannot accept the statement that "on the therapeutic side it [the personal relationship] is capable of completely

objective analysis" On the therapeutic side, to my mind, as well as in those phases which are not strictly medical, the relationship of patient to physician implies psychologic, moral, spiritual interrelationships which are not susceptible as yet, at least of that "completely objective analysis" which we bring to bear through the scientific method on, for example, our vital statistics or our scientific or clinical investigation The minority's pronouncement on this point seemed to me to probe more deeply below the surface and to reach more effectively into the very heart of the problem The minority's formulation implies more than diagnosis and treatment It recognizes the subtleties and the refinements of the relationship between patient and physician which from time immemorial have been upheld as the greatest claim of medicine to its position of pre-eminence among the merely natural professions

The corollaries drawn from this fundamental statement of the basic question are obviously forestalled in the two formulations The majority report draws from its formulations of the personal relationship the conclusion that group practice in one of its many forms is a desirable and perhaps a necessary development of present-day medicine The minority report, on the other hand uses its formulation of the basic relationship as a plea for the restoration of the general practitioner to a central place in medical practice The majority report pleads explicitly or implicitly for mass medicine, the minority report for a higher degree of individualization in medical practice The majority report calls attention to the feasibility and desirability of group purchase of medical service, while the minority report issues a word of warning against some of the most undesirable features of group purchase

I myself have little difficulty in making a choice between these two points of view The matter can hardly be treated here at great length, but it seems to me that, even from the statistics so ably assembled and presented by the experts working with the committee the conclusion unquestionably obtrudes itself that some way must be found by which the enormous machinery can be reduced which in certain quarters has been devised for the physical and medical care of groups of individuals, if the financial cost of medical care is to be reduced effectively Methods of mass production may well be considered effective in industry It does not follow that mass production is effective in all lines of human endeavor Certain phases of medical practice may be susceptible of "completely objective analysis," but my own experience as a patient in dealing with physicians makes me very skeptical concerning that analysis when I try to formulate the reasons why different physicians have given me different measures of satisfaction, not only in their human relationships toward me but also in their strictly professional activities I cannot be deeply impressed with endless tabulations of medical diagnostic and therapeutic activities The long processions of statistical data on the number of home visits, the number of telephone calls, the number of treatments as measures of professional adequacy, even vital statistics taken by themselves, are little more than the skeletons from which may be reconstructed, if one is shrewd enough, the vast organism of medical practice Of course, these things must be in our complex life They are measures of activity, necessary and desirable measures, without which much of the machinery of our everyday life would have to be discarded to the loss of the conveniences and facilities developed on our cultural level, but even when all this

is said, there still remains the fact questioningly staring us in the face that such statistics belong rather to the method of medicine than to medicine itself They cannot be regarded as substitutes for that more subtle and, to my mind, objectively unanalyzable contact between the physician and his patient

GROUP PURCHASE OF MEDICAL SERVICE

Lastly, I should like to comment, at least briefly, on the views of the majority and minority reports concerning the group purchase of medicine The public at large has probably regarded this phase of the committee's report as the central thought, of most interest to itself The majority report encourages experimentation with various plans of group purchase The minority report discourages such extensive experimentation and wishes rather to lay emphasis on the source from which emanates responsibility for the service purchased as well as for the purchasing power The minority recommends that "the corporate practice financed through intermediary agencies be vigorously and persistently opposed as being economically wasteful, inimical to a continued and sustained high quality of medical care or unfair exploitation of the medical profession" This is the minority's pronouncement on group practice Concerning group purchase of medical service, the minority recommends that "careful trial be given to methods which can rightly be fitted into our present institutions and agencies without interfering with the fundamentals of medical practice" The stress in the mind of the minority is on the safe-guarding of the "fundamentals of medical practice" rather than on the extension and development of financial schemes

Of course this pronouncement is an indicator of the minority's conservatism To be dubbed a conservative is an insult in the minds of not a few people I cannot so view it Organic growth is a conservative process just as is the process of self-differentiation In an epigenetic process, each succeeding step is told by the preceding step Medicine would do well to heed the lessons of ontogenesis Of course, the majority report has forestalled some measure of criticism under this head by stressing the thought that it is planning the development of medical practice for the next twenty-five or fifty years But to plan the integration of medicine into an unknown and precipitately evolving society without knowing, as we all confess we cannot know, the directional trends of the future and that at a time when we cannot even see the significance of present tendencies, is perhaps the most self-condemnatory statement which the majority could have made in comment on the committee's activities There may be certain forms of society into which group purchase of medical service could logically and consistently be integrated Ours probably is not such a form as yet It must not be forgotten that while there are enthusiastic advocates who see unquestioned success in the trial of those methods by other nations, there are still not wanting other critics who have pronounced group purchase of medical service on a national and also on a more restricted level not only as a medical but also as a social failure The minority regards some of the plans for group purchase as the frankest possible schemes for the commercialization of medicine What is implied in such a statement can hardly be amplified in this paper, suffice it to say that a commitment to policies which harbor the merest hint of such a danger may lead progressively to forms of legal regulations which will tie

a millstone round the neck of medical practice and submerge it under waves of selfish aggrandizement

CONSTRUCTIVE RECOMMENDATIONS OF THE MINORITY REPORT

The minority has not refrained from making constructive recommendations which, it is my personal belief, should be viewed with no less respect than the plans submitted by the majority. Essentially, the minority is concerned with retaining the medical profession's preeminence in any plans that may be formulated for the furtherance and greater effectiveness of medical practice, whereas the majority's proposals are concerned, it seems to me, rather with economic dominance in medical practice. To be sure, every summation of this kind may be unjustifiably general, but perhaps this formulation is as fair as any. The minority recognizes the necessity of readjustments of organized medicine and of the medical practitioner. This need is too obvious to require elaborate discussion. The point, however, lies in this: Shall that reform, if that word must be used, come from medicine itself or shall it come from a nonmedical source?

I should like to call attention to two aspects of this matter. First of all, the minority complains and, I believe, rightly that a thread of criticism of the medical profession binds together the various recommendations of the majority report, the implication being that medicine has been at a standstill. How unjust such an implication may be let those tell who have labored in laboratory and clinic and school and office during the last few decades. Of all the sciences, with the possible exception of physics, medicine has progressed with constantly accelerated speed. It has broadened and deepened and heightened its activities to a degree which all but paralyzes the mind that tries to follow and it has given us an insight into vital processes comparable in their significance to no other biologic discoveries of the past. And if it should be rejoined that we all recognize the scientific progress of medicine but that we complain of the lag in the application of the scientific discoveries, I can only answer that unfortunately such are the limitations of the human mind not only in medicine but also in all forms of human endeavor in which the observations of the research worker must be translated into action programs of the practitioner. We can, however, accelerate those applications if we enlist more and more the enthusiasm the services, the drive-to-do of those most concerned with scientific progress. In the field of medicine, whose interest can be more effectively aroused than that of the practitioner? We have an elaborate organization of medicine, not too elaborate, but elaborate enough. The hierarchy of local, state and national medical societies is second in the compactness of its organization to the organizations effected by scarcely any of the other professions. These groups can certainly be aroused to an increasing sense of their responsibility to the public.

At any rate, the evidence has not been presented, to my satisfaction at least, that we can afford to ignore organized medicine in any program looking toward the more effective application of medical science to the public. I am speaking not only of the American Medical Association but of those many other societies in special fields whose primary function, it is true, may be the promotion of scientific thought but which fully realize that scientific development has a profoundly important significance for human betterment and whose members are seriously concerned not only with abstract

truth but with the applications of that truth to human society. It is not my place here to review the minority's strong pronouncements on this matter or to restate the programs which it suggested for the development of plans for medical care by state or county medical societies. The important principle is that through the minority's program the direction of future evolution in medical practice is kept within the hands of the profession itself. The responsibility for that evolution and for the mechanism by which that evolution is effected remains vested in those to whom it belongs.

As a second thought, let me point out that I have no confidence in the growth of a profession by external pressure. Self-differentiation is the prerogative of the living organism. Growth is a spontaneous vital process not amenable to coercive or artificially restrictive measures. The profession of medicine is such an organism, it must grow and divide itself in response to its organic needs. External pressure may stimulate or retard, but such acceleration or retardation pertains only to the velocity of growth and differentiation but is not growth or differentiation itself. I am here referring not only to the processes in the development of general practice but also to the development of specialization. It would seem to be implied in several sections of the majority report that specialization can be brought about by arbitrary ways, by designating this or that physician to do this or that piece of work, by the ipse dixit of an authority controlling a group, or by the self-claims of this or that individual physician. Such forces do not make specialists. As medicine progresses, the specialty itself emerges and with that emergence is usually found the specialist who will devote his attention more and more to the new need, but both the need and the situation of the need must come from medicine itself. If this principle is accepted and acted on, the differences between general practice and specialization will be rapidly adjusted.

SERVICE DONE BY THE TWO REPORTS

The majority report, to my mind, has done its greatest service to medicine by arousing the interest of the medical man in the economic and social problems implied in medical practice. The minority report, to my mind, has done its greatest service to medicine by restating and reemphasizing those basic principles of medical practice which must be the foundation of all development in medicine, not only of scientific development but also of social and economic progress in the practice of medicine.

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Thrombocytopenic Purpura—Purpura hemorrhagica was first described by Werlhof, in 1775. Knowledge concerning the nature of the disease developed gradually, until even today there is no complete agreement as to the etiological factors concerned nor as to the mechanism by which these factors act. Denys, in 1887, first observed that the blood platelets were missing in a case of purpura. Nine years later (1896), Hayem showed that in purpura there was a failure of clot retractility. Duke, in 1910, demonstrated that a thrombocytopenia and fibrinogen lack have very definite effects on bleeding time. He pointed out that the reduction of platelets in purpura hemorrhagica is associated with an increased bleeding time, but not with any marked variation in the coagulation time. Hess showed conclusively that there was a marked weakening of the capillary vessels in purpura hemorrhagica as evidenced by the petechial and even large subcutaneous hemorrhages which developed distal to a tourniquet applied to the upper arm tight enough to obstruct the venous flow.—Eliason, E. L., and Ferguson, L. K. Splenectomy in Purpura Hemorrhagica, *Ann Surg* 96 801 (Nov.) 1932.

INVESTIGATIONS AND CONCLUSIONS OF THE COMMITTEE ON THE COSTS OF MEDICAL CARE

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The Committee on the Costs of Medical Care after five years of activity, officially discontinued its work at the end of 1932. This committee was composed of some fifty members, among whom were representatives of the fields of private practice, public health, medical institutions and special interests, the social sciences and the general public. With the aid of a director of studies, an administrative staff and a research staff, generously supported financially by grants from several large foundations, extensive fact-finding investigations were undertaken and completed, the results of which were published in some twenty-six monographs. The implications of the facts revealed by the various studies were carefully considered, a tentative draft of recommendations was formulated and submitted to advisers and members for criticism, and on Oct 31, 1932, a final report entitled "Medical Care for the American People" was completed. This last document contains a majority report, two minority reports, and personal dissenting statements by two of the members.

All agreed that adequate scientific medical service and facilities should be accessible to all the people, no matter what their incomes are, that services for the prevention of disease and for the maintenance of positive health are necessary as well as curative services, that those who furnish the services should be properly remunerated, and that in the field of professional education there is need for extensions and for changes of emphasis to correspond to changing social and economic conditions and to the better recognition of preventive and administrative needs.

The majority report recommended as an ultimate goal (1) that medical service, both preventive and therapeutic, should be furnished largely by organized groups of physicians, dentists, nurses, pharmacists and others, organized preferably around a hospital, the service to include home, office and hospital care, with the maintenance of high standards and the development or preservation of a personal relation between physician and patient, (2) that all basic public health services be made available to the entire population according to the needs, (3) that the costs of medical care be placed on a group payment basis, through the use of insurance, of taxation or of both, though service on an individual fee basis for those who prefer it need not be precluded, (4) that the study, evaluation and coordination of medical service be considered important functions for every state and local community and that agencies for the exercise of these functions be formed, and (5) that certain much needed improvements in undergraduate and postgraduate medical instruction be made, that the social aspects of medical practice be given greater attention, and that the practice of the specialties be better controlled.

The principal minority report recommended (1) that government competition in the practice of medicine be discontinued and that government activities be definitely restricted to certain special fields enumerated, (2) that government care of the indigent be expanded so as ultimately to relieve the medical profession of the

burden, (3) that the recommendation of the majority with regard to the functions of each state and local community in the study, evaluation and coordination of medical service be approved, (4) that united attempts be made to restore the general practitioner to the central place in medical practice, (5) that the corporate practice of medicine, financed through intermediary agencies, be vigorously and persistently opposed, (6) that methods that can rightly be fitted into our present institutions and agencies without interfering with the fundamentals of medical practice be given careful trial, and (7) that state or county medical societies develop plans for medical care.

It is obvious that the chief differences of opinion in the committee are referable to (1) the question as to whether medical practice shall be kept mainly in the hands of single practitioners or shall be the function of groups, organized about a hospital in a so-called medical center, and (2) the question of group payment for medical service by means of insurance, of taxation, or of both.

In the discussion of group service, those favoring the majority report believe that, with proper leadership, medical facilities can be so efficiently organized as to achieve economies in the production of medical care of all kinds needed, not only without sacrifice of the quality of service but with improvement of its quality and increase of its volume, and that the incomes of the medical practitioners supplying the service can be increased or stabilized above the level of the average net income of private practitioners, whereas those disagreeing with the majority report express the fear that the freedom of the participating practitioners would be restricted, that the doctors would inevitably come under lay control, and that the important personal relations of doctors to patients would be lessened or destroyed.

In recommending group purchase for certain income groups by voluntary insurance, by taxation or by both, those favoring the majority report believe that the costs of good medical service could be so distributed that they would be no hardship to any one and that more money could be made available for the cure and prevention of illness and for the maintenance of positive health than is spent for these purposes under the present system of private individual practice. Those opposing the recommendation of group purchase fear the dangers of mass production, the creation of medical hierarchies, obstruction to free competition, an inferior quality of service, a deprivation of the rights of patients to choose their own doctors, inadequate compensation of practitioners, and diminished attractiveness of medical work for men of greater ability who, they think, would be driven into other fields. Voluntary insurance plans, they assert, are only preliminary steps toward compulsory insurance, or toward the development of state medicine, and they point to the bad patterns of group purchase that were established, at first, in Europe when attempts were made to distribute the costs of medical care there, such plans some maintain are promulgated by "meddlesome Matties," often with selfish designs, and are bound to lead to the formation of "medical guilds," to "medical socialism" or to "medical sovietism" with all the evils that they believe to be inherent in such systems. The principal minority report has received staunch support from the Lowell Commission on Medical Education, despite its recognition of the evils that result from excessive competition, overcrowding of the pro-

profession, specialization, prohibitive costs and poor distribution of modern facilities—evils that must be, it thinks, corrected by the coordinated effort of colleges, societies, hospitals and health services—this commission believes that there are fundamental advantages in the American form of practice that would be lost if group practice and group purchase were to be adopted.

Similar divergence of views has been apparent among members of the dental profession, though the nursing profession, hospital administrators, public health workers, and the executives of the great philanthropic foundations have, on the whole, tended to support the recommendations of the majority report.

That the organization of medical practice and the distribution of the costs of medical care must undergo some alterations because of the advances of medicine and the continually changing social and economic conditions would seem certain.

The advocates of the recommendations embodied in the majority report foresaw many of the objections that would be raised and laid stress on the importance, in applying any insurance principle, of complete separation of the costs of medical care from the cash benefits that go for loss of wages due to illness, they also stressed the desirability of avoiding any mechanization of medicine, of preserving the right of selection of attending physicians, of insuring the maintenance of the highest quality of medical service and facilities, of avoiding any interference with the desirable personal relationships of doctors and patients, of keeping the control of the professional aspects of the work entirely in the hands of medical men untrammelled by the dictation of laymen, of making steady evolutionary progress rather than revolutionary change, and of trying various methods of approach to the goals visualized by adapting any changes made to the special needs of each local community rather than by the adoption suddenly of any nation-wide or even state-wide method of group practice or group purchase.

Despite the bad patterns established at first in Europe, no country that has resorted to the principle of insurance has given it up and the patterns more recently followed in Denmark and Sweden are free of some of the evils of the older methods. Students of medical conditions in countries in which insurance plans are in vogue assert that the average care of the sick is better than it was before insurance was introduced and that the average income of the doctors providing the services is larger than before. It must be admitted, however, that the mortality rates have not decreased under insurance systems, that the average number of illnesses has increased, and that certain new syndromes—the ‘compensation-neuroses’—have often been in large part directly attributable to desire for benefits by the insured.

The medical men who were members of the Committee on the Costs of Medical Care have had a feeling of deep responsibility both to the profession to which they belong and to the public served by that profession. They were desirous to avoid any attitude that would be obstructive to needed reforms but they also sounded words of caution against any sudden and rash ventures into dangerous areas. They favored, therefore, the making of a variety of experiments, especially by local groups in the hope that observation of the results of different types of effort might in time lead to wider adoption of those that proved to be best.

A total unwillingness on the part of the medical profession to participate in trials of the proposed methods of organization and of payment might easily be misinterpreted by the public, and a warning against too negative an attitude would seem to be in place. One need only recall the fact that the violent opposition of medical men did not prevent the introduction of health insurance in Germany or in England, but it put the doctors in a false light, excited public hostility, gave rise to the idea that the physicians were selfish rather than public spirited, and led to the exclusion of medical influence and leadership from the making of the plans. Since it seems certain that certain types of voluntary or compulsory insurance will inevitably be given a trial in the United States, it would seem to be wise for medical men to attempt to direct them along the routes that appear to be least objectionable, keeping control of the medical policies so as to avoid as far as possible the establishment of bad patterns here and seeing to it that whatever experiments are tried shall be thoughtfully controlled and the results thereof critically evaluated. In this way the medical men of America would profit by the mistakes of their European confreres, would keep the good will of the public, would maintain the dignity and ideals of the profession, and, at the same time, would discover what place, if any, health insurance ought to occupy in American health programs. There is no doubt at all in my mind that my colleagues in the medical profession want the forms of practice and the methods of payment that will be most conducive to the welfare of the American people, and whatever is really best for the people will, in the long run, be best also for the physicians and surgeons who serve them. In determining what is best, the vast amount of fact-finding work done by the committee and its staff of investigators, its careful consideration of those facts, the recommendations made by both the majority group and the minority groups, and the widespread discussion of the report throughout the country ought to prove to be most helpful in reaching decisions regarding the best methods of providing adequate medical care for our people at costs well within their reach.

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Private Practitioners and Preventive Medicine—In America as in this country, it is being recognized more and more that the private medical practitioner, and especially the general practitioner, is one of the most powerful agents of preventive medicine, and that he may claim to rank at least equally in this field with his two great colleagues—the public health medical officer and the research worker. It is a mistake to try to gauge the relative importance of the work of each of these three still less is it necessary for any one of them to vaunt himself above the others. They should be regarded as a team, each of whom must avail himself as fully as possible of the services of the others in order that full public advantage may be secured. In this country, as perhaps everywhere, the discoveries of the research worker take far too long before they are actually put into common practice, the public health medical officer too commonly still regards the private practitioners of his area as engaged in a separate sphere of professional work, and those private practitioners continue to pursue their daily activities in preventive as well as curative medicine without realizing as they should, that they ought to be a continuous and integral part of the public health organization of the area. Private practitioners were the earliest agency in the prevention of disease. They have never ceased to be such agents. Yet it is only now that they are beginning consciously to recognize themselves—or that the public is beginning to recognize them—as one of the most effective and essential of such agencies.—*Editorial Brit M J* 2 413 (Aug 27) 1932

PREPAYMENT PLANS FOR HOSPITAL CARE

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Although it is claimed that the temples of Saturn represent the origin of hospitals, thousands of years passed after this alleged classical beginning before civilization had developed to an appreciation of and a demand for buildings set apart exclusively for the care of the sick, even in the largest urban centers. Hospitals of the early centuries of the Christian era were established for various purposes—the housing and relief of orphaned children, the aged, the poor, the infirm, the lame and the blind, and for lepers outside the towns. These were charitable, relief and service institutions and no doubt contributed much to the comfort of the unfortunates who applied for succor. It is not definitely known, in each instance, to what degree medical care and nursing constituted the functions of these early hospitals but it should be clear that the expansion of this phase of hospital service was directly dependent on the progress of general science and medicine.

The hospital in its modern sense was but slowly created. Certain of the early types of service seem to have persisted, and these are now found in institutions organized for special purposes such as children's hospitals, city and county hospitals for the poor, orthopedic hospitals, maternity hospitals, communicable disease hospitals, and hospitals devoted exclusively to the care of eye diseases. It seems safe to infer, therefore, that hospitals have followed the developments in medical knowledge and have been organized to provide service in both the general and the special fields of medical practice.

Since hospitals have furnished a service which, in certain instances, has contributed to the facility of medical practice and to the safety and comfort of the patient, the ideals, customs and ethical principles governing hospital practice have gradually been brought closely to parallel the principles of ethics of the medical profession. If the medical profession and hospitals are to serve the public on an equally high ethical and professional plane, the ideals and objectives of the two institutions must be identical.

There seems to have arisen some confusion relative to the capital investment of the medical profession as compared with the capital investment of hospitals. Although each physician must expend, for his preparation and physical equipment, a certain amount of cash which may be considered a portion of his capital investment, before he may practice medicine, the larger and ever increasing chief capital investment in medicine is represented by the constantly accumulating body of knowledge, a capital fund which is not the property of any individual or group of physicians and the benefits from which the profession has always freely made available to the public.

This may be compared with and contrasted to the constantly increasing value of hospital, clinic, laboratory and allied properties and equipment. This capital, with some few exceptions, is not held exclusively as an individual or group asset, in the majority of instances it constitutes, broadly speaking, a trust investment for the good of the community, in reality a social

possession. Even in the case of the privately owned institutions there is a definitely implied social interest.

The real medical capital, first mentioned, consisting of accumulated knowledge, is stored in the minds, ideals and traditions and in the publications of the medical profession and is shared freely with the public through universities, journals, discussions, the public press, radio and individual consultations. This capital cannot be monopolized for profit. It does not fit into the capital concept of industrial economics, yet it is the greatest asset of the profession. Without it all physical capital would be worthless.

The capital investment in hospitals is variously estimated at approximately \$3,000,000,000, most of which is organized or incorporated on a non-profit basis although about 10 per cent of this amount is to be found in hospitals organized for profit. This predominance of non-profit bearing hospital capital together with the support of these institutions by philanthropy and public good will is an evidence of the general acceptance of the social interest and possession concept of hospital properties and service. The entire investment in hospital properties, including those hospitals incorporated for profit, has been made for the benefit of the public. But the public can reap its benefits from these investments only to the extent that the physical capital of hospitals serves and assists the knowledge and experience possessed by the medical profession.

This fact of the dominance of the "professional knowledge capital" is of primary importance in the development of any program of furnishing medical service, including hospital care. Unless this immaterial "capital" maintains its dominance over the physical capital in any such program, the service itself suffers. The physical capital must remain the instrument wielded by the personal skill and knowledge.

During the past decade the physical capital of hospitals has been enormously increased. This expansion may have been in keeping with the general trend during the pre-economic depression period. It is difficult to show that this expansion always followed a well established need. It is also difficult to reconcile some of the cost of inordinately expensive construction and equipment with the requirements of good medical care. Nevertheless, the capital has been invested, interest becomes payable regularly, building bonds must be retired, and maintenance is necessary. Because of shrunken incomes there seems to be not only a diminished use of hospital service but, when hospital care is necessary, there is also increased difficulty in making collections. The incomes of philanthropists and supporting foundation funds have likewise contracted, thus somewhat affecting certain hospitals and institutions.

Sensing the financial pressure with which some hospitals are faced and utilizing the popular discussion about the costs of medical care, certain commercial interests have recently developed mass production schemes for hospital care seeking to create a larger market to provide more funds with which to meet the hospital overhead costs. It is significant that this attempt to capture the professions by the use of mass production methods in the marketing of medical and hospital care should appear just when industry and business are endeavoring to incorporate into their methods some of the characteristics of the professions. At present, efforts to "professionalize" business are being directed by trade associations, legislation and a host of semipublic bodies and interested individuals in an effort to restrain some of the excesses of business.

DESCRIPTIONS OF SCHEMES

With few exceptions, group hospitalization schemes are now being promoted by commercial organizations seeking contracts for from one to five years with hospitals for hospitalization membership campaigns. The contract with the hospital may or may not guarantee a definite number of members but it always states the commission on which the organization agrees to undertake the sales work. These commissions vary from 21 per cent to approximately 75 per cent of the amounts paid by the members. Members are usually secured in groups, although some organizations solicit individuals. The cost to members varies from \$6 to \$24 annually.

It is claimed by some of the promoters that free choice of both physician and hospital is granted the members, but obviously this is a misrepresentation whenever all physicians and all hospitals in a community are not included.

Certain contracts provide hospital care for workmen's compensation cases, although most promoters exclude these cases from contract benefits. In some cases, physicians' fees are collected and paid to the hospital apparently under the supposition that the hospital staff members are to make the home calls and give all other medical services without further remuneration. Some contracts provide, further, that no member may enter the hospital as a patient until examined by a member of the hospital staff.

Monthly contract payments by members are usually made by payroll deductions wherever members are secured in groups. Members are usually entitled to twenty-one days of hospital care during any twelve month period. Patients requiring more than the twenty-one days of hospital service are entitled to from 25 to 50 per cent reduction from the regular hospital rates. This reduction in rates is sometimes granted to the member's family.

There is a wide difference in the methods of handling funds. One scheme provides that the hospital giving the service may draw on the promoting organization for the full amount due, several plans provide for a flat per diem rate to be paid hospitals for the care of members, the balance remaining at the end of the year to be prorated among the participating hospitals, other schemes provide that the monthly membership premiums shall be paid directly to the hospitals, none of the schemes provide for an adequate safeguard of funds.

Although promoters have placed in their contracts certain limitations on service to which members are entitled, they have likewise included in several instances, as a part of the hospital care, a number of distinctly medical services which must be given by physicians without pay.

The experience in the field of group hospitalization is too limited to provide reliable data concerning the quality of service rendered.

CRITICISM

The principal merits of such plans are the following:

Limitation of these schemes to hospital care with restrictions as to length and character of services furnished and as to diseases covered makes possible more accurate actuarial calculations than are applicable to general sickness service. Confining the scope to employed groups insures certain standards of health and income and reduces sales and collection expense.

Such schemes seem to afford temporarily, at least, regular financial support to the hospital, it is claimed that they will tend to reduce fluctuations in the use of

services and to distribute the burden of cost among a large number, thereby reducing the load on individuals. If hospital standards are maintained, a fairly high grade of care is assured.

Such schemes provide a method of payment of the costs of hospitalization for many patients who might otherwise be objects of charity and a burden on the resources of the hospitals.

Some of its present and prospective defects are that

To a large extent such schemes are being installed as a result of a "tactics of desperation," in which hard-pressed hospitals are seeking "any port in a storm." This is a situation in which hasty action is apt to create institutions and vested rights and relations the future effects of which may be far different from present expectations. Such plans need careful consideration based on investigation and comparison of experiments now under way. Examination of some of those already in existence and others in process of adoption gives ample evidence of the lack of such investigation and preparation.

The adoption of such a plan by a single hospital or a group of hospitals, in a locality, creates a division within the hospital field and the medical profession. By creating an artificial monopoly through salesmanship and through compulsion by employers, "unfair competition" is exerted on those hospitals outside the scheme. This situation encourages the formation of rival groups and such undesirable forms of commercial competition as solicitation, underbidding and consequent deterioration of service. It also destroys freedom of choice of physicians and hospitals for as large a section of the population as are induced to become members or certificate holders.

All such plans tend to lessen the control of county medical societies over medical practice and thus to decrease the effectiveness of the most important form of professional control of standards and ethics, while at the same time it increases the influence of lay commercial interests.

Even with all the safeguards of the British system, most of which are absent from American schemes, the question of control of hospital management of lay organizers of contributory schemes is becoming troublesome. Does any one believe that, once a promoting organization, perhaps of nation-wide scope, has through a system of contracts gained control of a large share of the market for hospital service, it will hesitate to use that power to influence or control hospital management?

Such plans tend to extend hospital care beyond its natural scope. Patients who would ordinarily be cared for by a family physician at home will more often insist on going to the hospital where they feel they have already paid for care. Baylor University Hospital found in its early experience that teachers used the hospital privileges during vacation for rest and the treatment of ailments neglected during the teaching term. This is an indication of a tendency that has disrupted actuarial calculations in many European systems of health insurance. When any form of service is paid for in advance, there is a desire to secure the benefits. Consequently, not only have morbidity rates steadily increased under all such systems but, whenever the medical services and cash benefits are not separated, great pressure is brought on physicians to certify to sickness so that the cash benefits may be obtained. It is probable that a similar pressure will be exerted by contributors to hospital insurance on attending physicians to secure hospital certification. Should this

tendency develop, it would invalidate the calculations, none too accurate at present, on which schemes of hospital insurance are based, and also tend to create some of the conflicts between patient and physician that have had such evil results in systems of general health insurance. Where there is a choice of hospital, if the rates paid are such as to leave a surplus, the hospital may be inclined to encourage overhospitalization as a source of income.

These plans make the hospital a "preferred creditor" over the physicians and surgeons. Unless the contract and the salesmen make it emphatically clear that the services of the physician require additional payment, many patients will be led to believe that their contributions cover all expense during hospitalization. Experience has shown that hired salesmen soliciting contributions from firms and individuals may not only neglect to point out any such restrictions but may seek to give the impression that *all* medical care is covered by the contributions or monthly payments.

The employment of salesmen, especially on commission, which is a feature of most plans, introduces all the elements of commercial competition, including some that are considered "unfair" even in business. Such plans depend on securing contracts for future sales from a large section of the market for medical services and then using the monopoly so secured to fix the terms of such service. When this monopoly is further buttressed by group and employment compulsion, denying to the individual for some time in the future the right to select the form and source of his medical service, conditions are created closely analogous to those that have already been condemned in business by the Federal Trade Commission and the courts. Such a comparatively mild method of insuring future patronage as is offered by "trading stamps" has been forbidden by law in many states.

Reference has already been made to the dangers of misrepresentation when salesmen are employed. Practically all these plans issue some sort of advertising, usually in the form of circulars or pamphlets for general distribution. Such material invariably exaggerates the scope of the protection offered. In many cases the divergence between such advertising and the terms of the contract is greater than the Federal Trade Commission permits in business advertising.

The moment the sphere of commercial competition is permitted to invade the organization, direction and marketing of medical services, and especially if these functions are placed in profit-seeking commercial hands, the whole history of medical practice has shown that deterioration in ethics and service inevitably follows. Rival schemes fight for survival by lowering payments for professional services, by more flamboyant advertising and exaggerated promises and by giving inferior service.

If payments are made direct to the hospital or if the funds are held in open bank account by the commercial organization promoting the scheme, there is, in some plans, no security that the scheme is sufficiently sound financially or the funds so safeguarded that in case of failure the insured who had contributed for future care might not be left without recourse. This is especially true when a scheme is conducted either by a hospital or by a separate agency without proper safeguards being set up to insure the safety of the funds.

Every new social arrangement tends to become a nucleus of much wider developments and to establish

institutions, customs and vested interests having an influence far beyond the immediate intentions of the founders. This will almost certainly be true of hospital insurance. The first tendency, already developed in several schemes, is to extend the scope of the scheme from hospitalization to general medical care. There are some especially undesirable features about the extension of a scheme planned for hospitalization, often managed by profit-seeking promoters and with no control by organized medicine. If general medical care for low-paid workers is to be placed on an insurance basis, it certainly should not be introduced incidentally through plans organized for other purposes and in ways hostile to the best considered opinions of the organized medical profession.

There are a number of legal questions that do not seem to have been sufficiently investigated and have not yet been passed on by the courts. Can a hospital chartered "not for profit" enter into a scheme which, as do some of those offered by promoters, promises considerable profits? Do these schemes constitute insurance? If so, will they come under the various laws and regulatory bodies set up for control of insurance? The legal provisions of the different states vary widely on this point and certainly should be examined by any hospital proposing to enter into such a scheme. The exact legal obligations incurred by the hospital through the contract with the member or certificate holder lack clear definition and interpretation. In view of the relation to insurance and to the prohibition of some closely analogous forms of "unfair competition," the exact responsibilities assumed under such a contract have not yet been clearly defined. Such arrangements make the physician certifying to the need of hospitalization a part of the contract and create relations in some ways different from those existing when such a contract does not exist.

The broad effect of all such plans is to shift the burden of hospital support from philanthropy and good will to assessment of low-paid workers. One of the selling points made by promoters of such plans is that the surplus received from contributions constitutes a profit or may be used to meet the expense of indigent care. It is also urged that many previously free bed wards may be changed to income-producing space. Is it entirely ethical for an institution to utilize philanthropic gifts to build such free ward beds and then use them for producing income or profit? This question may be purely academic at the present moment, but will it remain so in the future?

Restriction of the scope of service to the employed means that a worker who contributes to such a scheme for years becomes ineligible for its benefits the moment he loses his job. If the loss of his job is due to failing health, he loses his protection just when most needed.

Confining the scope of the service to employed wage-workers leaves a large section of the population most in need of hospital care without protection, a feature that in other countries has led to a demand for all-inclusive, compulsory governmental action. Is the pattern being created by the present hospital schemes one that could be followed by such an extension without the introduction of great harm to the medical profession and the public?

These present and projected defects which characterize most of the current schemes for group hospitalization constitute a violation of the principles of professional conduct and the practice of medicine which for thousands of years have proved their fair-

ness, soundness of doctrine and faithful adherence to the best interests of the public. Taking advantage of a temporary financial exigency, certain commercial interests have selected that portion of medical care which is easiest to sell and are endeavoring to create a mass production market from which a considerable profit will accrue to the promoters.

A pertinent question which has been avoided by the promoters of hospitalization schemes is: Does the public need at the present time an increased amount of hospital care or will it benefit more from a greater amount of medical care in the home? Whichever way the question is answered, disregard of the principles that should govern all agencies equipped to render medical care is certain to result in an ultimate lowering of the quality of medical care. The physical capital in medicine, in whatsoever form it may exist, must always remain the instrument wielded by the personal skill and knowledge and must ever conform to an undepreciated standard of medical values. Anything that separates the mental capital from the working tools and institutions of the profession is sure to prove destructive to the medical profession and injurious to the public.

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COMMENTS ON THE INTERNSHIP

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The importance of practical experience in the training of physicians has been recognized since the beginning of history and in every part of the world. The earliest efforts to control medical licensure and education developed requirements for this phase of the preparation of the physician. The edict of Frederick II in 1224, which was merely an elaboration of that promulgated by Roger II of Sicily in 1140, provided that no physician could be licensed until he had completed the examinations conducted by the masters at Salerno and had practiced under a recognized physician for one year.

The medical training in Great Britain and France from the beginning has been developed around clinical clerking and other practical experience in the wards of the hospitals and in district dispensary teaching in such institutions as the University of Edinburgh. The long period of training in Sweden, Holland and Denmark is designed to permit ample experience for students in the care and treatment of patients. The apprenticeship method of training in the earlier days of this country produced physicians almost entirely by means of practical experience.

When the medical schools in this country were organized, many of them were created as independent enterprises in contrast with the development of medical training in the hospitals of England and France and in the universities of Germany, Holland and other continental countries. In many places the classes were very large. Elsewhere the clinical facilities were inadequate. In most instances the teachers were practitioners who were busy with their own vocation. The cost of conducting adequate laboratory teaching made it impossible in most places to provide a sound preparation in the basic sciences. For these various reasons, the training in most of the medical schools was largely didactic and

theoretical in character. The internship was designed to correct the lack of practical bedside instruction and to afford a period of supervised experience in the care and treatment of patients.

The internship has now come to be widely regarded in this country as a part of the basic training for the practice of medicine, as attested by the facts that about 95 per cent of recent graduates voluntarily take a hospital experience of one year or longer, that seventeen states now require the internship as a prerequisite for admission to the licensing examinations, and that a similar number of medical schools in the United States and Canada require it before granting the degree of Doctor of Medicine.

The type and arrangement of the hospital period should not be standardized, however. It is important that the educational features of the internship should not be rigid or uniform for all hospitals but should provide a variety of opportunities of high quality adapted to the educational needs, previous preparation, and life programs of different individuals. The present trend of medical education, in common with that of all phases of higher education, is toward adapting the training to the needs, capacities, interests, preparation and plans of the individual student rather than providing a uniform, rigid discipline that is essentially identical for all students. The internship is only a part of the whole scheme of medicine and, as such, several kinds of internships will best meet the requirements of different students. All, however, should aim to round out and complete the earlier period of preparation in the medical course proper and should be arranged to facilitate the continuity of that training.

There are 696 hospitals, representing 221,174 hospital beds and offering 6,261 internships, which are approved by the American Medical Association (1932). The mere fact that a hospital is a good hospital does not necessarily mean that it provides a satisfactory internship, for the latter requires an interest on the part of the staff in the training of the young physician and an ability to provide him with a satisfactory educational experience.

Unfortunately, a considerable number of the hospital services are used inadequately for educational purposes and some internships are merely devices for securing free resident services in the hospital, largely for the benefit of the institution and the staff. Furthermore, the best appointments are usually secured by the superior students from the better medical schools. The less well trained students may be further handicapped by an inferior hospital experience.

The preliminary period of hospital experience should be the most important phase in the development of a competent physician, for it provides the opportunity for the student to apply his knowledge to practical problems under the direct supervision of qualified physicians and to obtain graduated responsibilities for the actual care and treatment of patients. It is highly important that every effort be made to improve the educational content of the hospital training and to relate it more soundly to the medical course and to the professional needs of the young physician.

Much discussion has arisen in recent years regarding the most desirable type of hospital service. In a number of states, attempts have been made to prescribe the content and time requirements of various parts of the experience. It is unfortunate that the internship as an educational experience should be standardized and regulated in this manner. The type of service is not

nearly as important as the opportunities that are provided for the right kind of training

A properly conducted rotating internship can be made a rich educational experience, but usually the periods assigned to each department are so short that a student has opportunity to obtain only the most superficial contact with the subject matter of each division. He is given very little opportunity to benefit by the assignment to any single service. This serious defect of a plan which tries to present most of the clinical fields in a short period or which aims merely to provide a kaleidoscopic presentation of cases may actually destroy in students the careful, thoughtful approach to complicated clinical problems which is the aim of the earlier training in the medical school. One objective of that training is the development in the student of sound methods and habits of study which will provide him with a permanent intellectual and professional equipment for his entire career. An internship which thwarts the development of those sound methods and habits of study cannot serve the best interests of the profession, the student or the public.

The usual "straight service," on the other hand, is apt to be unsatisfactory for the student who is going into general practice, and frequently it is not well articulated with the basic medical course. Such a service often does not provide a sufficient range of experience with the usual disorders, accidents and disabilities seen in the community.

Some of the straight surgical appointments probably do more damage than good when they encourage the recent graduate to do surgery before he is really prepared in judgment, skill and experience to do it properly or safely. It is well known that the popularity of some of these services is due to the opportunities provided for the interns to do major surgery. Contact with and watching expert operators is liable to create the impression that surgery is relatively easy and largely a matter of operating room technic.

Neither the usual short rotating service, which provides a hurried, superficial experience in many departments, nor the usual long straight service, which provides an experience in a single field, meets the needs of most students. The so-called mixed service has been developed in an attempt to provide a sufficiently long and intensive experience in a single subject, such as medicine, and a shorter period in another field, such as nonoperative surgery, pediatrics or obstetrics. They have the merit of flexibility and can be made to fit the educational needs of the student. They permit him to improve and extend his knowledge and skill in methods of diagnosis and treatment and to become acquainted with a sufficient range of the usual diseases and accidents to make him a reasonably safe and competent practitioner. They provide the most satisfactory preparation for general practice or for further training in a limited field of practice than do most rotating or straight services.

If a better control of surgical practice in this country is to be secured, those in charge of surgical internships have a peculiar opportunity and responsibility. It does not follow for a moment that all surgical internships are unsatisfactory. Some of them which lay particular emphasis on diagnosis, preoperative and postoperative care, and nonsurgical therapy, and less emphasis on specialized technics, provide an educational experience which is thoroughly satisfactory. The surgical internship, however, should not aim to produce a surgeon

The experience and training which aim to do so should be secured in postgraduate education, particularly through the development of resident services of sufficiently long duration to allow a physician to obtain a thorough training in the field.

A number of centers are now planning or have created programs of graduate training in the several clinical divisions (general surgery, urology, neurologic surgery, the head specialties, orthopedic surgery, pediatrics, psychiatry, obstetrics and gynecology), admission to which is based on completion of a previous internship. This is a move in the direction of advanced preparation for practice in the special fields. It is a part of the important trend to require all those who desire to limit their practice to a specialty to have had an adequate preparation in their limited field. Time will not permit a discussion of the place which this phase of training will or should play in the creation of a register of specialists in each state. As these graduate phases of medical practice and education become more clearly defined and more widely recognized, we shall probably see a definite modification of the internship in special departments of general hospitals and in special hospitals. In some centers already the trend is toward abolishing internships in single services (surgery, pediatrics, obstetrics) and toward the development of residencies as a part of graduate instruction, admission to which is based on a previous general internship.

If the internship is to be successful as an educational venture, some individual or group on the staff of the hospital should be responsible for seeing that opportunities are actually provided for the intellectual and professional development of the student, and that the work of the intern is properly supervised by responsible members of the staff, particularly in regard to the discussion of cases, differential diagnosis, proper treatment, and the use of the laboratory, library and other facilities in the study of patients.

It is highly desirable that the student during his hospital period should assume more personal responsibility for the care of individual patients and become familiar with various elements in the environment, the home, and the everyday activities of the patient, in order that he may secure a more intelligent understanding of these factors which are known to be so important in practice.

Only about 10 per cent of patients are hospitalized. The great majority of sick persons are not obliged to go to a hospital. Outpatient services should be used as much as possible to assist the intern in becoming acquainted with the more common illnesses and with the wide range of social and economic factors which are often important in diagnosis and treatment. As part of his educational development the intern should be given freedom for reading and should be required to use the library as well as the laboratory in working up cases and should be expected to attend staff meetings, clinical conferences, autopsies, the readings of roentgen examinations, and consultations, and to participate as fully as his training permits in the care and treatment of patients.

The internship occupies a position in the educational plan between the basic course, in which significant changes are now being made, and the now rapidly developing fields of postgraduate education, in which a number of major developments are now in process. If the development of the hospital period of training is to be sound and of the greatest value, medical faculties should take a more active interest and responsibility

in shaping the hospital opportunities as an essential part of the whole program of medical education, of which the medical course, the internship, graduate training for the specialties, and postgraduate instruction of practitioners are only different phases

RENAL FUNCTION IN ARTERIAL HYPERTENSION

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It is being increasingly recognized that hypertensive cardiovascular disease is not a primary disturbance of the kidneys. It terminates much more commonly by cardiac failure or cerebral apoplexy than by renal failure. Nevertheless, it usually affects the kidneys to some degree and occasionally enough to produce renal insufficiency and uremia. The importance of determining the state of the renal function in this condition is therefore evident. In a previous paper¹ it was concluded that an adequate analysis of kidney function was possible from the results obtained from the following three tests: (1) an examination of the urine for albumin, casts and cells, (2) a determination of the degree of glomerular filtration by an urea or creatinine clearance test, (3) a test for tubular reabsorption by determining the ability of the kidney to concentrate urine. In the present study these tests have been applied to a group of patients suffering from arterial hypertension but with no clinical evidence of renal failure, in order to gain as much information as possible regarding the nature of the physiologic and pathologic changes that occur within the kidney in association with arterial hypertension of varying duration. In addition, a group of eight patients with glomerulonephritis were similarly studied mainly for the sake of comparison with the twenty-four primary hypertension cases.

The terminology employed by Volhard and Fahr² is used here. The renal lesion occasioned by primary arterial hypertension would be classed by these authors under the head of nephrosclerosis. It corresponds to the condition called arteriosclerotic Bright's disease by Addis³ and by Van Slyke⁴. The studies reported by these investigators were made on relatively advanced cases as compared with our cases.

MATERIAL USED

Twenty-four cases of arterial hypertension were studied. The systolic blood pressure varied between 175 and 260 mm of mercury, with an average of 212. The diastolic pressure varied between 95 and 150 mm of mercury, with an average of 116. The majority of the patients had been known to have high blood pressure for at least two years. With the exceptions to be noted, all were ambulatory and showed no evidence of cerebro-

vascular, cardiac or renal failure at the time of examination. Patient 19 had dyspnea on moderate exertion, patient 2 had suffered a hemiplegia as a result of a cerebral hemorrhage seven weeks previously, and patients 12 and 24 had had cerebrovascular accidents many months prior to the studies, from which they had largely recovered. Patients 6 and 15 had had several cerebral vascular crises. Patients 6, 7, 17, 19, 20, 21 and 22 were classed as cases of malignant hypertension. Of these, patients 7, 17 and 22 subsequently died, six months, four months and one month, respectively, after the studies were performed, and autopsies confirmed the clinical diagnoses.

There were eight patients with glomerulonephritis. Of these, cases 26, 27 and 28 were of the acute type. Cases 25 and 29 presented subacute nephritis, and cases 30, 31 and 32 were chronic. Patient 25 was the only one who showed marked edema. All three patients with the chronic lesions subsequently died. Patient 25 was discharged with essentially an unchanged state of health, all the others recovered apparently completely or were discharged clinically well and with only slight evidence of residual kidney damage.

METHODS OF INVESTIGATION

Urinalysis was carried out in the routine clinical manner. The extent of albumin present was recorded from \pm to $++++$, representing amounts from the slightest detectable trace to a large amount. The number of casts and red and white blood cells present per high power field in the sediment of a centrifugated fresh specimen was noted. No further attempt was made to quantitate the abnormal formed elements.

The percentage excretion of phenolsulphonphthalein two hours and ten minutes after its intramuscular injection was studied.⁵

The dilution-concentration test that was employed consisted in having the patient drink 1,500 cc of water at 8 a. m., and no more fluid was given for twenty-four hours. Urine specimens were collected at hourly intervals for four hours after the water had been drunk, at two hourly intervals during the rest of the day and in one specimen at night.

In all cases the urea clearance test was performed according to the technic of Moller, McIntosh and Van Slyke.⁶ An attempt was made to obtain a maximum clearance in each case by having the patient drink at least 400 cc of water each hour during the test and during the hour preceding it. In spite of this in a few instances the urinary excretion fell below 2 cc per minute, and the standard clearance was therefore calculated. Values below 75 per cent of the theoretical normal were considered to represent an abnormal decrease in functioning kidney tissue.

The creatinine clearance was performed in accordance with the technic described by Rehberg.⁷ Three grams of creatinine with 600 cc of water was fed to the subject at least an hour and a half before the test period. A calculated filtrate of less than 100 cc per minute was considered to represent abnormally low function.

¹ From the Thorndike Memorial Laboratory, Second and Fourth Medical Services (Harvard) of the Boston City Hospital and the Department of Medicine of the Harvard University Medical School.

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⁴ Addis Thomas and Oliver Jean. The Renal Lesion in Bright's Disease. New York Paul B. Hoeber Inc. 1911.

⁵ Van Slyke D. D., Stullman Edgar, Moller Eggert, Ehrlich W., McIntosh J. J., Leiter L., Mackay E. M., Hannon R. R., Moore N. S. and Johnston Christopher. Observation on the Course of Different Types of Bright's Disease and on the Resultant Changes in Renal Metabolism. Medicine 10: 27 (Sept.) 1930.

⁶ Rowntree L. G. and Geraghty J. T. An Experimental and Clinical Study of the Functional Activity of the Kidneys by Means of Phenolsulphonphthalein. J. Pharmacol. & Exper. Therap. 1: 579 1910.

⁷ Moller Eggert, McIntosh J. F. and Van Slyke D. D. Studies of Urea Excretion. II. Relationship Between Urine Volume and the Rate of Urea Excretion by Normal Adults. J. Clin. Investigation 6: 427 (Dec.) 1928.

⁸ Rehberg P. B. Studies on Kidney Function. I. The Rate of Filtration and Reabsorption in the Human Kidney. Biochem. J. 20: 447 1926.

RESULTS IN PATIENTS WITH HYPERTENSION

Urea Clearance—Although in only ten patients were the values for the urea clearance within the normal limits (75 per cent or more), nevertheless in nine other patients the results of this test were from 63 to 71 per cent of normal

Creatinine Clearance—In general, the degree of reduction in the creatinine clearance tended to parallel that found in the urea clearance. In cases 2 and 21 the urea clearance value was relatively higher than the creatinine clearance, in five cases (11, 15, 16, 17 and 18) the creatinine determination gave normal values when the urea clearance was slightly reduced

Summary of Results of Renal Function Tests in Twenty-Four Patients with Hypertension and in Eight Patients with Glomerulonephritis

Sub ject	Urine Examination			Maximum Concen- tration, Specific Gravity	Clearance		Phenol sulphon phthalein Excretion, per Cent in 130 Min	Blood Urea Nitrogen, Mg per 100 Cc
	Albu- min	Casts	Red Blood Cells		Urea, per Cent of Normal	Creat- inine, Cc		
Subjects with Hypertension								
1	0	0	0		132	180	90	6
2	0	0	0	1.030	120	100		12
3	±	0	0	1.025	105	130	40	17
4	0	0	0	1.025	100	120	60	7
5	+++	0	±	1.020	95		60	13
6	0	0	0	1.017	95	111	45	13
7	++	0	0	1.024	90		45	13
8	0	0	0	1.018	81	110	30	13
9	0	0	0	1.030	80	122	70	10
10	0	0	0		76		70	10
11	0	0	0	1.022	71	125	55	9
12	0	0	0	1.027	70	102		11
13	±	±	0	1.033	70	92	55	17
14	0	0	±	1.024	70	80	30	12
15	±	0	0	1.021	70	135	70	13
16	+	0	0	1.022	68	115	60	15
17	+++	+	±	1.020	68	114	70	7
18	++	+	0	1.023	66	100	70	11
19	+++	0	0	1.022	63		45	18
20	+++	±	0	1.016	52		45	8
21	++++	+	+	1.013	50	33	15	27
22	++	+	+	1.015	40	22	30	15
23	++++	+	±	1.019	35		25	22
24	±	0	0	1.020	30	47	35	27
Subjects with Glomerulonephritis								
25	++++	++	±	1.030	83	100	25	27
26	++	0	0	1.023	76	137	60	8
27					74	134		9
28	+	±	±	1.011	70	123	50	23
29	+++	++	+++	1.020	63	126	80	11
30	++	+	±	1.011	34	32	28	11
31	+++	0	++	1.006	6	0	Trace	119
32	++++	0	+	1.010	4	2	0	191

Concentration-Dilution Tests—An inability to concentrate the urine to a specific gravity of at least 1.020 was considered definitely abnormal. A maximum concentration of 1.025 or greater was taken to mean normal concentrating power. When the concentration fell between 1.020 and 1.025, the results were considered doubtful, although probably representing some decrease in concentrating power of the kidney.

A comparison of the concentration test with the urea clearance showed that on two occasions the concentration test gave definitely abnormal figures and twice the test suggested that probably the kidney was impaired when the urea clearance was within normal limits.

Conversely, twice, when the urea clearance was slightly reduced, the concentration test gave quite normal results. In all seven of the remaining cases in which the urea clearance was slightly low, the maximum specific gravity was between 1.020 and 1.025. In four of the five patients in whom the urea clearance test

was less than 60 per cent of normal the concentration test showed a distinct inability to concentrate the urine, and in the fifth the maximum specific gravity was 1.020. It is evident, therefore, that there was a tendency for reduction in concentrating power to parallel reduction in the urea clearance test.

The creatinine concentration in the urine samples collected for the dilution-concentration tests was determined and a blood creatinine determination was made in most of the cases. No creatinine was fed. From this the creatinine concentration index was calculated (concentrated urine creatinine — concentrated blood creatinine).

As pointed out previously,¹ there is reason to believe that the calculated glomerular filtrate without feeding creatinine gives results that are too low. However, when the maximum creatinine concentration index attained in any given case was compared with the maximum concentration of total solids, as indicated by the specific gravity, there was a tendency for a relationship between the two.

Every case in which the concentration index was at least 200 showed also a maximum specific gravity of 1.025 or higher, and every case in which the concentration index was less than 200 showed inability to concentrate the urine to a specific gravity of 1.025.

Urine Examination—Only one patient showed marked albuminuria in the absence of evidence of definite diminution of kidney function by the other tests. With increasing kidney damage, however, albuminuria as well as slight to moderate cylindruria and microscopic hematuria became a more prominent feature of the laboratory examinations.

Phenolsulphonphthalein Excretion—The phenolsulphonphthalein excretion was definitely impaired in only one case. This is in accord with the conclusion of others that this test as usually applied is of little value in detecting renal impairment until at least 50 per cent of the renal reserve has been lost.

Blood Urea Nitrogen—None of the patients studied showed levels for the blood urea nitrogen outside of what is usually considered the normal range. Until the urea clearance fell below 50 per cent of normal there was no correlation between the degree of impairment of renal function as measured by the urea clearance test and the height of the blood urea nitrogen. When the urea clearance fell below 50 per cent of normal, however, the blood urea nitrogen tended to rise. The average blood urea nitrogen in the patients with renal function above 50 per cent was 11 mg per hundred cubic centimeters, and in those below 50 per cent, 23 mg.

RESULTS IN PATIENTS WITH GLOMERULONEPHRITIS

The studies on the eight cases of glomerulonephritis were included to contrast the results obtained in this type of renal disease with those occurring in arterial hypertension. The most striking difference was in the urinary observations. Except when the disease was latent, albuminuria and hematuria were prominent features of the urinary picture, even though the total degree of glomerular filtration (as measured by the urea or creatinine clearance tests) was well maintained.

In four of the eight cases of glomerulonephritis (patients 26, 27, 28 and 29) the creatinine clearance test was found to give relatively higher results than did the urea clearance. In these patients this may have been due to an increased permeability of the tubular cells to urea, resulting in an excessive diffusion of urea back into the blood stream.

CORRELATION BETWEEN RESULTS OF RENAL TESTS
AND CLINICAL RESULTS IN HYPERTENSION

Age of Patients—A relationship between the age of the patients and the degree of renal impairment did not exist

Symptoms—There was no correlation between the nature and extent of the symptoms and the degree of renal damage. This is to be expected, since in none of the twenty-four cases of arterial hypertension was renal insufficiency present at the time the studies were made, and impairment of kidney function does not give rise to striking symptoms until renal failure occurs.

Height of Blood Pressure—There was a definite tendency for the degree of renal damage to increase with increase in the arterial blood pressure. This was especially true for the diastolic pressure. It would be unwarranted, however, to attribute any direct relationship between these two results. This is because the patients with excessive hypertension were those in whom widespread and marked vascular damage was present, who probably suffered from a diminished functional reserve of many organs. Moreover, in some of the individual cases presenting marked hypertension the renal reserve was within normal limits, so that it would be unjustified to draw conclusions as to the state of the renal function from a consideration of height of the blood pressure alone.

Duration of Disease—In a chronic condition such as arterial hypertension, which may exist for many years unrecognized and without symptoms, it is obviously impossible to correlate accurately the duration of the disease with the degree of the renal lesion. In the present series the known duration of the disease ranged from a few weeks to thirteen years. Patients 11 and 16, who have been under observation for thirteen and eleven years, respectively, had comparatively little impairment of renal function.

COMMENT

Correlation Between Physiologic and Morphologic Changes and the Clinical Manifestations—The facts elicited in this investigation are in accord with the known changes that occur in the kidneys in the early stages of hypertension. The renal lesion in this condition is due primarily to vascular changes, particularly in the glomeruli. Histologically, the lesions of the kidney are unevenly distributed and are of different degrees of severity. There is evidence⁸ suggesting that the earliest changes in the kidney as in other organs are of functional rather than of organic nature. A constriction of the efferent portion of the vessels of the glomeruli⁹ may well be the earliest change, which may result in increased capillary pressure and decreased blood flow in the glomerulus in which this constriction occurs. The rather characteristic change with thickening in the basement membrane¹⁰ and eventual shrinkage to complete sclerosis develops later. As has been pointed out by McGregor,¹⁰ at the time these changes involve some of the units of the kidney, others remain entirely normal. She observed a certain degree of quantitative correlation between a ratio of the percentage of normal glomeruli to the percentage of glomeruli

with characteristic changes in the basement membrane on the one hand and the reserve functional capacity of the kidney and uremia on the other hand. Thus, while the size and gross appearance of the kidney and a qualitative analysis of the microscopic changes fail to reveal a clear-cut relation between kidney structure and function, when such analysis is performed on a quantitative basis the correlation promises to be more definite. Histologically, the tubules are less involved than the glomeruli. This may be due to the fact that ischemia in the tubules with normal or low capillary pressure and with lack of stagnation may be less damaging to them than the same degree of ischemia is to the glomeruli in which high capillary pressure and back pressure dilatation of the capillaries exist.

Little attempt has been made to interpret in terms of physiology this irregular and scattered abnormality of the kidney units, so obvious from the histologic study of sections. It is apparent, however, that there must be considerable variation in the functional activity of the individual renal units within the same kidney. In the unit with a partially or completely sclerosed glomerulus, the blood flow is probably slow or may be completely stopped, while at the same time in the structurally normal or slightly damaged units the blood flow is increased considerably. One of us (S W)⁸ has demonstrated in a case of malignant nephrosclerosis with hypertension that the total blood flow through the kidney was considerably increased although a histologic study indicated that only 27 per cent of the glomeruli were normal. Of the remainder, 28 per cent showed changes characteristic of arterial hypertension, 32 per cent, changes that occur in glomerulonephritis, and 13 per cent, complete sclerosis.

As pointed out in a previous paper,¹¹ the concentration test measures the ability of the individual tubule to absorb water. This reabsorbing ability may be impaired, not only as a result of direct structural damage to the tubular cells themselves, but also as the result of conditions whereby excessively large amounts of glomerular filtrate pass rapidly down the tubules. In view of the fact that, with the progressive changes which occur in nephrosclerosis, many of the glomeruli are completely sclerosed, one may conceive of a situation in which half of the glomeruli are obliterated by the vascular disease but the remainder are comparatively unaffected. Under such circumstances, the normal glomeruli must greatly increase their individual filtration in order to maintain within normal limits the total amount of glomerular filtrate formed. However, this filtrate would be passing down half the usual number of tubules and the reabsorption of water would be hampered. Such a mechanism may have taken place in cases 6 and 8, in which the glomerular filtrate was normal although the maximum concentration was distinctly impaired. The frequently observed dilated tubules of units with normal glomeruli are probably the result of increased filtrate flowing with increased pressure and velocity through these tubules. Fremont-Smith and his co-workers,¹² on the basis of Cushny's¹³ theory, have considered theoretically the effect on tubular reabsorption of filtration through many or few glomeruli and with varying numbers of glomerular capillaries open.

⁸ Weiss, Sonia. Unpublished observations.
⁹ Bensley, R. D. The Efferent Vessels of the Renal Glomeruli of Mammals as a Mechanism for the Control of Glomerular Activity and Pressure. *Am. J. Anat.* 44: 141 (Sept.) 1929. Augier, M. Circulation capillaire arterielle rénale et son importance physiologique chez l'homme. *Ann. anat. path.* 7: 897 (July) 1930.
¹⁰ McGregor, Leone. The Histological Changes in the Renal Glomerulus in Essential (Primary) Hypertension. *Am. J. Path.* 6: 347 (Nov.) 1930.

¹¹ Ellis, L. B. and Weiss, Sonia. The Renal Function in Persons with One Kidney. *Am. J. Sc.* to be published.

¹² Fremont-Smith, F., Fremont-Smith, M., Dailey, M. E., Solomon, P., Stetten, D. Jr. and Carroll, M. P. Studies in Edema. I. The Mechanism of Water Diuresis in Man. *J. Clin. Investigation* 9: 7 (Aug.) 1930.

¹³ Cushny, A. R. The Secretion of the Urine. ed. 2. London: Longmans Green & Co. 1926.

However, there occurs in a certain number of instances an impairment in concentrating power due to actual damage to tubular function itself, secondary to the vascular changes. This is especially striking in the cases reported showing severe renal damage. In such stages the histologic structure of the tubules suggests this functional concept.

The great variation in the results of the renal function tests in patients with arterial hypertension is by no means as confusing and haphazard as it appears. When the functional tests are correlated with the known structural changes that have been observed in the kidneys of patients who have suffered from hypertension, the scattered and variable involvement of vessels of different renal units explains satisfactorily the results obtained with the clinical tests.

The Value of the Tests Used—In clinical practice, the value of the three tests used in this study comes especially from performing them at repeated intervals on the same patient. It is only by repetition that an estimate can be obtained as to the rapidity with which the vascular disease is causing impairment of renal function, and thus a prognosis can be arrived at.

Although the urea or creatinine tests are relatively sensitive in detecting early renal damage and they express absolute function of the kidney, in clinical practice it is frequently impracticable to carry out those tests which require elaborate laboratory technic and meticulous accuracy. For practical clinical purposes, in most early cases, provided there is no water retention, a carefully conducted concentration test when correlated with an examination of the abnormal constituents of the urine will furnish a fairly accurate index of renal reserve. If it is desired to carry out as complete an examination of the renal condition as is possible at present, and to separate the glomerular from the tubular functions, it is necessary to perform a test for glomerular filtration as well.

The term "essential hypertension," as identifying a hypertensive state of the body without impairment of the kidney function cannot be applied rigidly. This is illustrated by the fact that, in the present study, practically all the cases of arterial hypertension showing kidney impairment detected by the methods used would have been classified as "essential hypertension" in the past.

SUMMARY AND CONCLUSIONS

1 In twenty-four cases of arterial hypertension without clinical signs of cardiac or renal failure, and in eight cases of glomerulonephritis, three types of tests of renal function were used: the usual urinalysis, urea and creatinine clearance tests, and concentration-dilution tests.

2 In ten of the cases of hypertension the urea clearance test gave normal results, in nine there was a slight reduction, and in five it was markedly lowered.

3 Creatinine clearance tests, in eighteen of the same cases, was normal in thirteen instances, slightly reduced in two, and markedly reduced in three. In general, the outcome of the urea and creatinine tests tended to give parallel results.

4 In the twenty-two cases in which the concentration test was performed in the patients with hypertension, the maximum specific gravity of the urine was above 1.025 in six instances, ten times it fell between 1.020 and 1.025, and in the remaining six cases it fell below 1.020.

In only two cases did the concentration test show a definite lowering without a marked reduction in the urea or creatinine clearance tests.

For practical purposes, in most cases a carefully conducted concentration test is as sensitive an index of renal impairment as the urea and creatinine clearance tests.

5 Marked albuminuria or hematuria was uncommon in hypertension unless great limitation of function was detectable by other tests.

6 The results of this study have been analyzed in accordance with the filtration-reabsorption theory of renal physiology and have been correlated as far as possible with the histologic changes in the kidney, known to occur in hypertension.

7 There was a trend for the degree of impairment of renal reserve to parallel the height of the arterial blood pressure, particularly the diastolic pressure. There was no correlation to be made between the degree of renal damage and the age of the patients, the symptoms or the known duration of the disease.

DUPUYTREN'S CONTRACTION

SUMNER L. KOCH, MD

CHICAGO

A surgical condition seen rather often, but by no means as frequently as injuries of the tendons and nerves of the hand, or contractures due to a loss of covering tissue, is the idiopathic contraction of the palm and fingers with which is associated the name of the man "whom living all admired but whom few loved and no one understood," the founder of clinical surgery in France, Dupuytren.

Concerning it there are two essential facts that the surgeons should know: first as regards the pathologic manifestations and, second, the treatment.

From the very beginning of the disease a cord is felt on the palmar surfaces of the finger and hand, which is drawn tighter when an effort is made to straighten the fingers. The palmar fascia is in a state of thickening, contraction and tension, and from its lower portion something like cords proceed to the sides of the affected fingers.¹

With reference to the treatment

The fascia should be dissected out at once. An incision should be made through the skin over the whole of the contraction, and if the integument is tolerably soft and thick it should be turned off on each side so as to expose the fibrous tissue, which should then be carefully taken away. The utmost care should be taken to avoid the nerves and blood vessels at each side of the finger, and if the operation can be satisfactorily effected without opening a sheath or touching a tendon so much the better.²

These two brief paragraphs, which constitute the gist of the subject, are taken almost verbatim, the first, describing the pathologic lesion, from Dupuytren's *Leçons orales*, published in 1832, and the second, out-

From the Department of Surgery, Northwestern University Medical School.

Part of a paper on "Surgery of the Hand," read before the Boston Orthopedic Club, April 11, 1932.

1 Dupuytren, Guillaume. *Leçons orales de clinique chirurgicale faites à l'Hôtel Dieu de Paris*, Paris: Germer Baillière, 1832-1834. De la rétraction des doigts par suite d'une affection de l'aponévrose palmaire: opération chirurgicale qui convient dans ce cas. *J. univ. et hebdomadaire de médecine et de chirurgie* 2: 348-365, 1832 (transl.) *Lancet* 2: 222-225, 1833-1834, London. *M. & S. J.* 1: 266-268, 1832 (rev.) *Gaz. med. de Paris* 3: 41, 1832, Fascicule d'observations sur la rétraction des doigts, *J. univ. et hebdomadaire de médecine et de chirurgie* Paris 6: 67-75, 1832.

2 Fergusson, William. *A System of Practical Surgery*. American ed. 4 from London ed. 3, Philadelphia: Blanchard & Lea 16: 229, 1853.

lining the treatment, from Sir William Fergusson's System of Surgery, first published in 1842

It is an interesting commentary on the inconsistency of our profession that, alert as we are to every new discovery in medical science, we often completely neglect the careful investigations of those who have preceded us, sometimes by many years. The majority of the patients with Dupuytren's contraction who have

heavy object, the irritation associated with the constant use of golf clubs, and the frequent shifting of gears in driving a car. Not uncommonly a considerable interval, two or three or even more years, has elapsed between the injury and the onset. Furthermore, although patients with bilateral involvement frequently have ascribed the onset of the disease in one hand to a definite injury, they have been at a loss to explain its appearance in the other hand, or perhaps they have not been aware that it was already present in the other hand.

Similar reasoning might apply to the possibility of "gout" or "rheumatism" or a distant focus of infection as the important etiologic factor. In none of our patients have we been able to determine a definite relation between infection in some other part of the body and the development of the contraction. Careful questioning as to their past history and careful physical examination have not revealed a definite clue as to a possible relation between infection and Dupuytren's contraction. They have suffered from tonsillitis, dental infection and "rheumatism" just as has the patient who comes to the hospital because of a hernia, an acute appendicitis, or a hallux valgus.

The most significant fact, in my judgment, with reference to the development of the disease is the frequency with which one is able to elicit a history of similar involvement in other members of the family, and in the males particularly. The hereditary factor, frequently mentioned by earlier writers, assumes increasing importance if one questions patients carefully concerning their forebears. Among our patients with Dupuytren's contraction there have been eleven physicians, the daughter of a physician and the nephew of a physician. Of these thirteen patients, ten have given

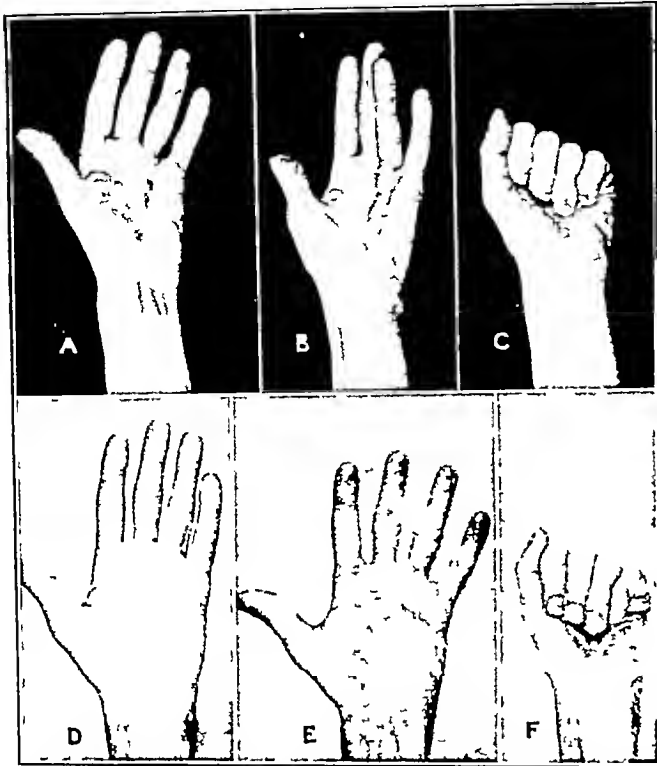


Fig. 1—Dupuytren's contraction of left hand. A, B, C before operation. D, E, F result three months after operation.

come under my care have consulted many different medical men and have frequently been told that the condition involved the flexor tendons and that if any operation was carried out the function of the hand would probably be lost.

Space does not permit me to review in detail the various theories concerning the etiology of the disease or the many interesting facts concerning its incidence and life history. My associates and I³ attempted a few years ago to record them as carefully as possible. As was indicated in that paper, three theories have been presented to explain the thickening and gradual contraction of the palmar fascia which form the essential pathologic change: local traumatism or infection, infection in some other part of the body, a congenital predisposition to the disease. Approximately one half of the patients who have come under our observation have ascribed the onset of the condition to a single definite injury of the hand or to continued irritation associated with constant use of the hand in some specific occupation or sport. We have not felt, however, that the evidence furnished a reasonable basis for considering trauma as the important etiologic factor. The traumas to which the development of the contracture have been ascribed are identical with those to which each one of us is constantly subjected—a slight penetrating wound, a baseball injury, a bruise from the impact of a

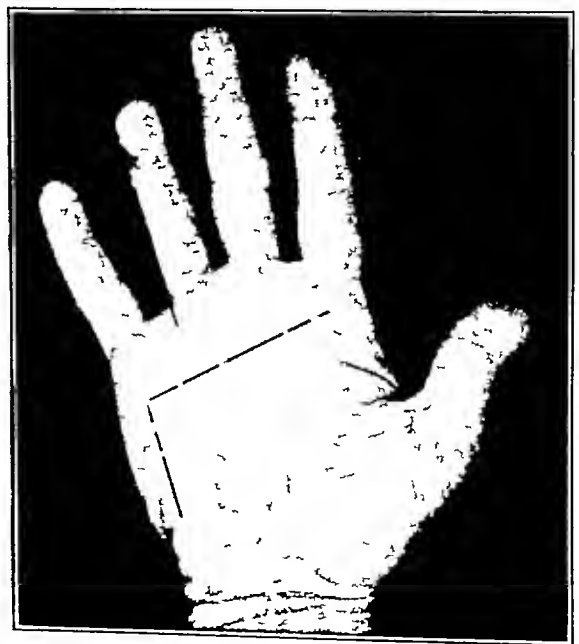


Fig. 2—Type of incisions used in case illustrated in figure 1.

a history of a similar or, perhaps, of a more extensive contracture in other members of the family.

In considering the treatment of Dupuytren's contraction, it is difficult to improve on the paragraph quoted from Sir William Fergusson's System of Surgery. We have laid constant stress on certain factors: the correct choice of incision, the use of a bloodless field secured with the help of a known degree of constriction (the blood pressure manometer), complete removal of

³ Kanavel, A. B., Koch, S. L., and Mason, M. L.: Dupuytren's Contraction with a Description of the Palmar Fascia. A Review of the Literature and a Report of Twenty-Nine Surgically Treated Cases. Surg. Gynec. & Obst. 45: 145-190 (Feb.) 1929.

hopelessly involved skin, and wide removal of the palmar fascia well beyond the obviously involved area, exacting care in the dissection to protect the digital nerves and blood vessels, the use of a free full thickness graft if skin edges cannot be brought together without tension, careful hemostasis, last, but far from least, careful technic at every stage of the operation to insure asepsis and wound healing by primary union.

Two of these factors deserve an additional word. The incision used most frequently in our earlier cases was a longitudinal one along the line of the contracted cord. With the use of such an incision it was not always possible to reach nodules that had developed in the radial half of the palm, or to secure healing without the development of a longitudinal scar which required some time to become soft and inconspicuous. In later years

tissue, and as the cord contracts the nerve is not uncommonly displaced to one side or the other as much as a fingerbreadth. Unless the nerve is followed with care and dissected free from the fibrous tissue that surrounds it before any of the fibrous tissue is excised, it is almost impossible to avoid irreparable injury of this important structure, with subsequent anesthesia and trophic disturbance of the skin of the affected portion of the finger.⁴

In February, 1929, when our paper referred to was published,³ we had operated on twenty-nine patients with Dupuytren's contraction. Since that time we have been able to add eighteen new cases to this group and to observe for a longer period those previously operated on. Our results have constantly improved, as we have used greater care to remove all the involved fascia, to avoid trauma of skin flaps and of digital nerves and vessels, and to leave nothing undone in the preoperative preparation and operating room technic that would help to protect the patient from wound infection, and so help to insure primary healing of the operative wound.

54 East Erie Street.

AN OPERATIVE TREATMENT FOR CORNS

WALTER I. GALLAND, M.D.
NEW YORK

The treatment of the common corn, which is one of the most widespread of the minor ailments affecting the feet, has been almost entirely ignored by the medical profession, and most sufferers have been exclusively treated by practitioners of chiropody. The common treatment is the paring down of the hypertrophied epithelium or the application of various types of keratolytic pastes, plasters, collodion paints and protective pads. These remedies are at best palliative and frequently, in spite of the adoption of proper footwear, the corn persists and continues to cause not inconsiderable discomfort. The palliative treatment of corns is adequate in perhaps the greater number of cases, but occasionally the condition is intractable and renders the wearing of any type of shoe painfully uncomfortable. Indeed, the irritated corn, which compels the individual to hold the foot in a strained attitude in order to avoid the unpleasant friction with the shoe, may be the primary causation of a severe chronic foot strain with all the accompanying sequelae of that condition.

Basically, a corn is not dissimilar to a bunion save in those variations which are predicated on location, size and anatomy of the underlying joint. The clavus, or common corn, consists of more than the keratinized skin which is pared off by the chiropodist. This cornification is but the result of a chronic irritation and although this irritation is probably initiated by improper footwear, there are certain structural changes in the toe underlying the corn which favor the continuance of the cornification. As in a bunion, there is a definite hyperostosis, which takes place at the interphalangeal

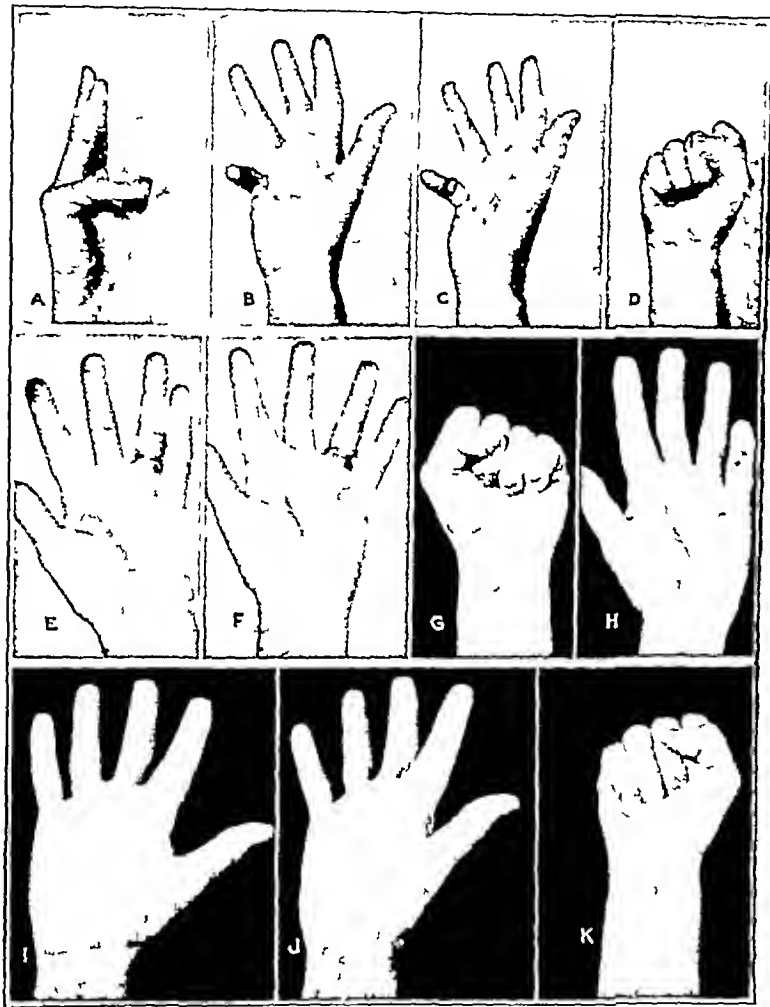


Fig. 3—Dupuytren's contraction of both hands (patient of Dr. Emory M. Porter of Providence, R. I.). A, B, C, D, E, F, G, H, right and left hands before operation, I, J, K result six months after operation on right hand, at time left hand was operated on. (The result of the operation on the left hand, according to the patient's statement, is equally good. Photographs have not yet been secured of the left hand after operation.)

we have utilized more often the incision indicated in figure 2. By continuing such an incision proximad along the ulnar side of the hand, excellent exposure of the fascia in the palm can be obtained. The transverse limb of the incision permits the removal of fascia on the radial side of the hand as far as the index finger. Such incisions, moreover, heal readily and with minimum scar formation since they do not cross the normal flexion creases of the palm.

Another factor, protection of the digital nerves also deserves added emphasis. In the fingers, as Mason showed, the digital nerves lie between the two layers of the digital fascia. As these two layers fuse and become converted into the thick fibrous cord that is so frequently the outstanding feature of the disease, the nerve becomes completely surrounded by firm fibrous

4 In view of the difficulty that one encounters in dissecting the digital nerves involved from the surrounding fibrous tissue, even when one has adequate exposure and a bloodless field it is surprising that subcutaneous division of the affected fascia should still be recommended yet Davis stated (Davis, A. A. The Treatment of Dupuytren's Contracture. A Review of Thirty-One Cases with an Assessment of the Comparative Value of Different Methods of Treatment, Brit. J. Surg. 19: 539-547 [April] 1932) that "as the results from even the most major operative procedures are far from satisfactory, the minor operation of multiple subcutaneous fascial division should be adopted, and repeated if necessary, in the average patient of the hospital class." From the orthopedic services of Dr. Charles H. Jaeger, Lenox Hill Hospital, and Dr. Harry Finkelstein, Hospital for Joint Diseases.

joint margins and forms a definite though minute prominence, which may frequently be palpated by careful digital inspection. Once this exostosis has been produced, the skin is constantly subject to frictional irritation between the shoe and this bony prominence. It is quite obvious that under such conditions there should be a tendency toward the formation of a bursa between the skin and the osseous projection. In the so-called inflamed corns, this bursa may reach not inconsiderable size, and, as in the case of bunions, may become definitely infected. The pain that is produced in the corn arises largely in this bursal structure. I have removed a bursa underlying a corn on a fifth toe when the bursa measured 1 by 1.3 cm and its removal reduced the size of the small toe by fully 25 per cent.

The bursal nature of this structure has been demonstrated by pathologic examinations of tissues removed in operations in such cases. The following reports verify the bursal character of this tissue, which interposes itself between the small exostosis and the corn.

Dr Henry L. Jaffe of the Hospital for Joint Diseases reported

The gross specimen consists of a fragment of soft tissue. This is a small bursal sac. The entire specimen was embedded. Microscopic section shows a sac, the lining of which is in places intact and is synovial-like in character. In places it shreds out indefinitely as necrotic tissue. The wall is edematous with very mild round cell infiltration. Diagnosis: Bursa.

The following report is by Dr F. W. Bullock of the Lenox Hill Hospital:

The specimen, received in solution of formaldehyde, consists of a rectangular fragment of tissue, opaque white in color, firm in consistency, measuring 1.3 by 0.7 by 0.2 cm, designated "tissue from little toe of left foot." Microscopic examination shows fibrous tissue, parts of which are compact, while other parts are loose and edematous. This tissue is rich in small thin-walled vascular spaces, most of which are empty. These spaces are irregularly distributed and usually occur in groups. They are often surrounded by collections of small round cells and in certain regions the inflammatory cells show a more diffuse distribution. One surface of the fragment is concave and is covered with a thick layer of fibrin, in the meshes of which are a moderate number of polymorphonuclear leukocytes. Diagnosis: Chronic bursitis or tenosynovitis. No evidence of tuberculosis.

It is obvious from the foregoing that in order to effect a cure of a particularly painful corn the underlying pathologic condition must be removed. It should not be forgotten, however, that frequently hammer toes too will predispose to corns on the apexes of prominent interphalangeal joints. These deformities may be of a primary nature and may be caused by any of the numerous conditions that can lead to the production of a claw foot. In other cases, however, the hammering deformity may be secondary to the irritation of improper footwear and may thus be attributed to the same basic factor as that which produced the corn itself. It is obvious, therefore, that these basic deformities of the toe must also be corrected in order to avoid the reformation of such corns. The following operative procedure for the radical cure of corns has been devised and has proved satisfactory in every respect.

The toe is anesthetized with 2 per cent procaine hydrochloride. It is most advisable to use a regional anesthetic administered at the base of the toe, so that the area of the corn should not be infiltrated with the anesthetic as this renders the dissection of the bursa difficult. After the foot has been properly prepared, the

keratinized epithelium is removed from the corn by means of a sharp curet. If the operator begins to dissect with the curet around the margins of the corn, he will be able to find a natural plane of cleavage between the keratinized and the normal skin, and the entire superficial structure of the corn can be removed *en masse*. The skin is again iodized, and the area of the corn is surrounded by a semielliptic incision outlining a flap with the base proximally placed. This flap is dissected carefully, so that it will include only the skin. The bursal structure underlying the flap will now be found overlying the interphalangeal joint and above the extensor tendons. The bursa is dissected and removed. The extensor tendons are now displaced laterally or medially, and the joint margins are inspected. The bony prominences can usually be easily delineated or can be found by digital inspection. The prominence is largely cartilaginous, on account of the proximity to the joint structure, but also contains a considerable bony component. With a small chisel this tiny exostosis is removed, and the contiguous articular margins are smoothed out so as to present no irritating irregularities to underlie the skin. The wound is closed with silk sutures, which may be removed at the end of a week.

The patients are usually able to walk about immediately after the operation, provided they wear a shoe liberally cut out. Some patients have sufficient pain to keep them off of their feet one or two days.

In the healing process it is usual to find a considerable exfoliation of keratinized skin over the operated area in spite of the fact that a large portion of this cornified structure has been removed with the curet. At times this is so pronounced that it at first appears that the corn is returning, but in the course of ten days this mass is completely exfoliated and leaves behind a satisfactorily normal skin surface. A rather acute trichophytosis developed in one case of my series following the operation. This infection most probably originated from an area of trichophytosis that was overlooked prior to operation. It caused considerable irritation to the operated area and was uncomfortable for the patient. Accordingly, it is to be recommended that all such fungal infections be thoroughly treated prior to operation in order to avoid this unpleasant complication.

The soft corn is susceptible to precisely the same operative treatment. This type of clavus differs from the indurated corn only on account of the location between the toes. The moisture that gathers in this place subjects the keratinized skin to a macerating influence, and the cornification of the skin is modified in the form and consistency. However, the bursa and exostosis are always present and must be eradicated to cure the condition. On account of the absence of the heaping up of keratinized skin it is not always necessary to curet off this structure, as it will exfoliate in toto after the removal of the underlying pathologic condition.

CONCLUSIONS AND RESULTS

1. Painful corns are pathologically similar to bunions and can be effectively cured by operative means.

2. The operation described eliminates the pathologic sources of irritation by removing the bursa and the exostosis underlying the corn.

3. The operation causes a minimum of discomfort to the patient.

4. In the series of corns on which I have operated, the results have been extremely satisfactory, and no recurrences have been noted to date.

1085 Park Avenue.

AN HEREDITARY ARTHRODYSPLASIA
ASSOCIATED WITH HEREDITARY
DYSTROPHY OF THE NAILS

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ATLANTA, GA.

The condition that is being reported here as an hereditary arthrodysplasia is a disorder that is transmitted from parent to child, that causes deformity of the different joints interfering with their function and that, so far as it has been possible for me to determine, has never been reported previous to this report, which is based on a study of two families in which thirty-five of seventy-nine persons are affected.

It seems advisable to bring this condition to the attention of the medical profession, as the disorder in some instances causes deformity sufficient to compel the afflicted one to seek relief and as the deformity simulates other conditions with which it may be confused.

About five years ago the ninth individual in the fourth generation of the first family came to me as an obstetric patient. I noticed that she suffered from hereditary dystrophy of the nails and that her knees appeared flat when her legs were extended and angular when the legs were flexed on the thigh. The true significance of the condition was not realized at that time. A short while later one of her sisters consulted me because she frequently fell when running. Her knees also appeared flat when extended and square and angular when flexed and it was very hard to locate the patellae, which could not be found on the anterior surface of the knees. The tubercle of the tibia stood out prominently with the patella absent from its customary position. The ankles were thick, the malleoli being unusually large and contrary to the normal type, the internal malleoli larger than the external. The longitudinal arch of the foot was apparently less developed than normal, a slight degree of flatfoot being present.

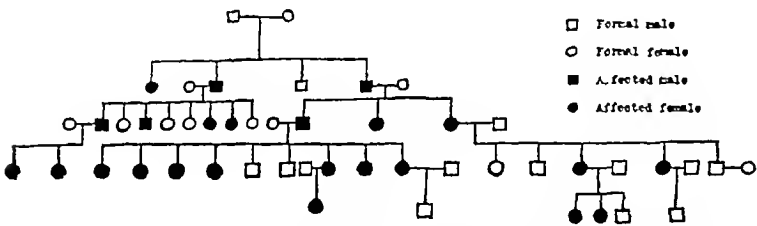


Fig. 1—Occurrence of hereditary arthrodysplasia associated with hereditary dystrophy of the nails through five generations of first family.

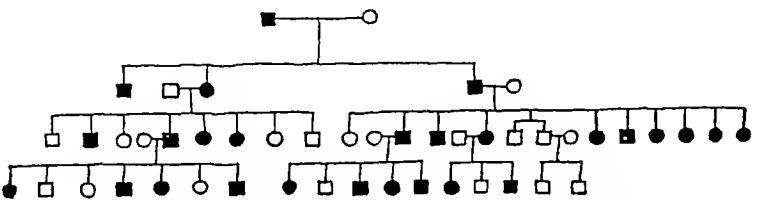


Fig. 2—Occurrence of hereditary arthrodysplasia associated with hereditary dystrophy of the nails through four generations of second family.

The shoulders showed a marked prominence of the acromial end of the clavicle, the appearance being similar to that presented after dislocation of the acromial end of the clavicle. However, in the deformity due to arthrodysplasia the step down from the acromial end of the clavicle was downward and forward to a prominence caused by the head of the humerus. Apparently the glenoid cavity of the scapula was well in front

of a line drawn downward from the anterior margin of the acromial end of the clavicle, and the head of the humerus with its muscle group stood almost in bas relief. The patient was unable to extend fully the arm at the elbow, and the carrying angle was increased. The internal condyles were unusually prominent on the inner side of the elbows. The wrists showed no very marked variation from normal. It appeared that there was a slight elongation of the carpal region, and the ends of the ulnar were barely noticeable when the hand was pronated. The fingers could be hyperextended at the metacarpophalangeal and interphalangeal joints.

Roentgenograms of the different joints showed deformities which may be considered characteristic. The picture of the shoulder girdle shows a scapula that is undersize. The coracoid process appears small. The acromial process is small and does not come forward above the head of the humerus. The head of the humerus appears smooth, the classic features of this bone being underdeveloped, the greater tuberosity being less great, the bicipital groove less deep. Examination of the elbow (fig. 4) shows a thickening of the lower extremity of the humerus in the anteroposterior diameter and a hump on the lower three inches of its posterior surface, giving a forward and outward inclination to this portion of the shaft. This forward and outward inclination is probably a factor in the increased carrying angle and the inability fully to extend the elbow. The internal condyle is larger and more prominent than normal and the capitellum is smaller than normal. The head of the radius is small. The picture of the wrist shows a marked concavity formed by the alinement of the posterior surfaces of the carpal bones. The metacarpophalangeal and interphalangeal joints appear to present no appreciable variation from normal.

In observing the patient there appears to be no appreciable abnormality of the hip or pelvis, but the roentgenogram (fig. 5) shows an increase in the angle between the neck and the shaft of the femur, the neck being more in line with the shaft than is normal. There is also an increase in the normal concavity of the external surface of the ilium, giving the crest the appearance of an outward flare in its posterior half.

In looking at a picture of the knee (fig. 6), the patella is located with difficulty, a rudimentary patella



Fig. 3—Patient showing absence of patellae, prominence of internal malleoli, low arches, increase of carrying angles at elbows, inability to extend elbow fully, and prominence of internal condyles. The right knee has been operated on.

being found high and wide on the outer side of the femur, both in flexion and in extension of the knee. The inner condyle and inner tuberosity of the femur are unusually prominent, playing a disproportionate share in the formation of the knee joint. This is so marked that the inner articular surface of the tibia shows a decided compensatory inclination downward and inward and the internal border of the tibia runs in an exaggerated curve upward and inward, giving the upper extremity of the tibia the appearance of leaning inward. The tubercle of the tibia stands out prominently. The upper extremity of the fibula is small and not well developed. The ankle seems well formed, although the malleoli appear larger than normal, the internal malleolus being much increased in size. The superior surface of the os calcis is convex anteroposteriorly in its posterior half and not concave, as is normal. It does not present the well marked lip normally found at the posterior superior border of the bone. The neck of the astragalus is not well marked, the trochlear surface being more in line with the head than is normal and not sitting well above it.

The dysergasia of the knee joint seems to inconvenience the afflicted person more than that of any other joint. Two of the members of the first family (fig 1) came to me because they frequently fell when running, the leg giving way at the knee. One of these suffered such marked inconvenience that operation for the purpose of anchoring the quadriceps tendon was advised. She was admitted to Scottish Rite Hospital and operated on with good result.

In the first family every member showing dystrophy of the nails suffered also from arthrodysplasia, twenty-six of thirty-nine persons being affected. In the second family (fig 2) twenty-seven of forty-one persons suffered from dystrophy of the nails, but only nine



Fig. 4—Elbow showing thickening of humerus, large internal condyle and small capitulum and head of radius.

suffered from arthrodysplasia, these not being specifically shown in the genealogical chart.

Hereditary dystrophy of the nails of the toes and fingers is a comparatively rare disorder, but not so rare that most physicians have not seen several cases. Jacobsen¹ in 1928 reported a family in which this

anomaly of the nails was associated with congenital alopecia and, in a review of the literature at that time, found reports of four other families in which these defects were associated. Barrett² reported a family in which these two conditions were associated with the occurrence of an hereditary hypothyroidism, this family being included in the group of five reported by Jacobsen. Tobias³ reported a family showing heredi-

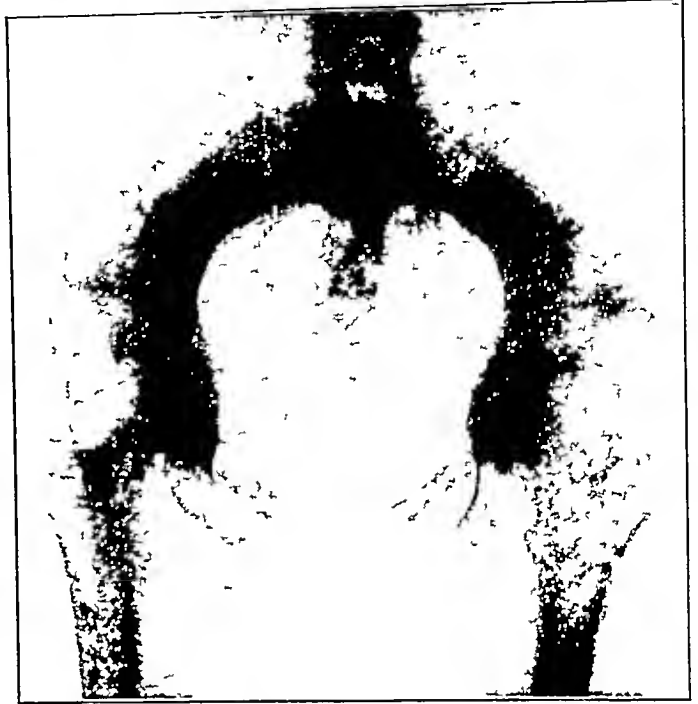


Fig. 5—Pelvis, showing outward flare of crest of ilium and increase in angle between shaft and neck of femur.

tary dystrophy of the nails unassociated with any other defect, and Thompson⁴ reported another.

The degree of the disorder of the nail varies from almost total absence of the nail to a nail that is scarcely distinguishable from a normal nail except that it is thinner. The thumbs are usually most affected, the condition becoming gradually less marked across the hand toward the little finger. The typical dystrophic nail presents a small normal appearing base that is, however, much thinner than normal and that gradually disappears about halfway down the nail bed, allowing the fleshy end of the finger to turn backward over the nail. When the extreme condition is present, it appears that the nail has been removed from the digit and not reproduced. The defect renders the digit affected almost useless for picking up pins and other thin objects.

Trophic disorders of one sort or another are frequently found in those individuals to whom the term constitutional inferiority is applied and Barrett² and other authors have referred to the association of mental deficiency with this anomaly of the nails. The association of disorders of other derivatives of the ectoderm has been reported and ichthyosis, keratosis palmaris, hypertrichosis, alopecia, and premature or abnormally late eruption of the teeth have been referred to as coexisting stigmas. Indeed the mental deficiency usually noticed in patients suffering from this dystrophy

² Barrett A. M. Hereditary Occurrence of Hypothyroidism with Dystrophies of the Nails and Hair. Arch. Neurol. & Psychiat. 2: 628 (Dec.) 1919.

³ Tobias Norman. Hereditary Familial Dystrophy of the Nails, J. A. M. A. 84: 1568 (May 2) 1925.

⁴ Thompson H. L. Hereditary Dystrophy of the Nails, J. A. M. A. 91: 1547 (Nov. 17) 1928.

¹ Jacobsen A. W. Hereditary Dystrophy of the Hair and Nails, J. A. M. A. 90: 680 (March 3) 1928.

may be considered as evidence of further involvement of ectodermal structures. The defects with which dystrophy of the nails has been associated in all previous reports have been found in ectodermal derivatives exclusively. The two families included in this report have had no associated defect of any derivative of the ectoderm but have shown a rather marked disorder of portions of the skeletal system, a derivative of the mesoderm.

The hereditary arthrodysplasia reported has been observed only in association with hereditary dystrophy of the nails. It appears to be transmitted in accordance with the laws that govern the inheritance of dominant characteristics, as described by Mendel. In the first family the same factor appears to govern the inheritance of the two disorders. In the second family it is evident that there are two different factors involved, as many members having defective nails show no defect of the skeletal system. In neither family does this arthrodysplasia appear independent of the dystrophy of the nails, consequently it may be deduced from these cases that the factor for dystrophy of the nails must be present for the factor for arthrodysplasia to be active. It is probable that whenever these two factors are present in the chromosomes, the individual will show arthrodysplasia. This would be the most simple explanation. On



Fig. 6—Knee, showing small patella, large inner condyle and inner tuberosity of femur, prominence of tubercle of tibia, and exaggerated curve of upper third of internal border of tibia.

the other hand, it is possible that both factors are present in every individual showing dystrophy of the nails but that a third factor is present also in those who do not show the arthrodysplasia and that the third factor has a repressive action on the factor for arthrodysplasia or on the interaction of the two. Certainly there is demonstrated in these cases the interaction of factors in man as described by Mendel and as demonstrated in plants and in color inheritance in the feathers of certain fowls. This is to me an interesting feature of these two conditions.

The fact that the degree of the arthrodysplasia may vary considerably from the well developed case, as described, to the case showing a minor degree of dysplasia of the knee alone or to the case which shows a well developed dysplasia of one knee and an apparently normal mate to it suggests that this condition may

be inherited according to the so-called mosaic inheritance. However, Adam⁵ has suggested that mosaic inheritance does not necessarily preclude the operation of mendelian factors, which are usually understood to carry a whole or none feature. Other authors have treated such variation at length.⁶

In this short sketch of the features of these patients' joints which appear as variations from the normal, it has been my endeavor to point out those which are most striking. No doubt, the entire skeletal system is affected and those who are more familiar with the normal and better observers than I will point out more surely and skilfully and describe more accurately these and other variations. It has served, if this condition has been called to their attention as a distinct clinical entity.

612 Atlanta National Bank Building

Clinical Notes, Suggestions and New Instruments

DERMATITIS FROM THE USE OF HEXYLRESORCINOL SOLUTION S T 37 ACQUIRED SENSITIVITY

CLAUDE L. CUMMER, M.D., CLEVELAND

The discovery of the cause of dermatitis is desirable from the patient's standpoint so that it may be avoided not only to expedite recovery but chiefly to prevent recurrences. To this end, reporting of instances is important when the previous record of offending substance has not been made.

Hexylresorcinol solution S T 37 is a widely advertised antiseptic, in general use by the profession and the public, but when the patient whose history follows was seen in 1931 I was unable to find any reference in the literature to possible irritating effects. In March, 1932, Templeton and Lunsford¹ reported six cases of stomatitis and cheilitis produced by S T 37 toothpaste, supposed to contain hexylresorcinol solution S T 37. They were unable to demonstrate which ingredient was responsible but suspected either altered or unaltered hexylresorcinol solution S T 37. All their patients reacted to contact tests for cutaneous sensitivity to S T 37 toothpaste, but apparently only two of them reacted to pure hexylresorcinol solution S T 37. Templeton and Lunsford had used hexylresorcinol solution S T 37 in full strength for many patients in their daily practice for over a year without any instances of dermatitis.

In May, 1931, I saw a patient with a severe cheilitis and also a dermatitis of the right hand and certain other portions of the body, which was shown by contact test to be due to S T 37 toothpaste, but in this case, as in some of Templeton and Lunsford's, the contact test to the pure hexylresorcinol solution S T 37 proved negative.

Because of the absence of any reports of dermatitis due to the solution itself, I feel that the following should be published for record.

A white married woman, aged 60, seen, April 18, 1931, through the courtesy of Dr. E. B. Rhodes of Cleveland, complained of a dermatitis involving the right ankle, the face, the neck, and the upper part of the chest, as well as inflammation of the lips and mouth. Examination showed injection and edema of the buccal mucosa, especially marked on the right side. The face, neck and upper part of the chest were bright red. In these areas the skin was edematous, especially over the eyelids, and was practically covered with pin-point to pin-head sized vesicles. On the right ankle was an approximately circular patch about 3 inches (7.5 cm.) in diameter showing similar changes.

The patient stated that she first noted a small spot on the ankle which she regarded as a mosquito bite. Hexylresorcinol

⁵ Adam: Principles of Pathology, vol. I.

⁶ Morgan, Sturtevant, Muller and Bridges: Mechanism of Mendelian Heredity, chap. II, p. 38.

¹ Templeton, H. J. and Lunsford, C. J.: Cheilitis and Stomatitis from S T 37 Toothpaste, Arch. Dermat. & Syph. 25: 439-443 (March) 1932.

solution S T 37 and a brand of thymol iodide (U S P) powder had been applied, and the inflammation had become progressively worse. About a week later, pyorrhea appeared around a right molar tooth. Fearful of a peridental abscess, she applied hexylresorcinol solution S T 37 on a pledget of cotton. Soreness of the lip was observed two days later.

The patient was unwilling to accept the diagnosis of dermatitis due to hexylresorcinol solution S T 37, because this solution had been a household remedy which her family had used freely and she herself had employed without harm for a long time. However, she consented skeptically to the application of a patch or contact test, which was performed with the contents of a new bottle in an original package. When seen on the following day, the test area showed erythema and vesiculation, an eruption identical in appearance with that on the face, neck and leg. The entire trouble cleared up promptly with the application of cold compresses of diluted solution of aluminum acetate.

Obviously, the reaction to hexylresorcinol solution S T 37 was due to an acquired sensitivity, since the patient had employed the solution previously for some months without unfavorable results.

1010 Hanna Building

AN EASY METHOD OF REMOVING PLASTER CASTS

RALPH J. MALOTT M.D., SCOTTSBLUFF, NEB.

Essentially, this method consists in creating, at the time of application, free channels between the gauze or wadding and the plaster, enabling one to saw through the plaster with a gigli saw, along a predetermined line.

Waterproof paper tubules (soda straws or similar casings) are threaded on a stout cord or a flexible wire of considerable tensile strength and applied over the gauze or wadding surrounding the part to be covered by the cast. At intervals of no greater than 12 inches the tubules, with encased cord or wire, are looped outward for a slightly greater length than the proposed thickness of the plaster cast. These loops are passed through perforated gummed paper strips, which, attached to the gauze, maintain their position.

The line of cleavage of the cast is determined at this time and may be a straight line or may be laid to meet the exigencies of the individual case. This method permits the easy forming of windows in the cast for the purpose of dressing the soft parts, in any desired location or shape. Diamond shape or rectangular apertures are secured more readily, but windows approximating a circle may be formed by short segments of very obtuse angles.

After the tubules are placed as desired, plaster-of-paris bandages are applied in the usual manner for laying a cast, and wrappings are made to surround these extended loops, so that when the cast is finished, the loops will extend a short distance beyond the surface of the cast. Being flexible, they may be protected by a bit of adhesive plaster to prevent wear until the time of severing the cast.

To remove the cast or to split it for temporary removal, the gigli saw is attached, by means of the eye in the end of it, to the stout cord or flexible wire and by that means is drawn through the first segment to be severed. Care should be taken not to angulate the saw too greatly to obviate breakage. Each succeeding segment of the cast is cut in the same manner. The time and energy involved in removing even a very heavy cast by this means is materially reduced. In addition, there is no opportunity of harming the patient since the act of sawing is always from within outward. For reapplication, a smooth line of cleavage is secured and the patient is spared the anxiety of cuts or pricks as are occasionally experienced when the cutting is toward the body.

Embedding materials in casts to facilitate the removal is an old trick but has heretofore presented difficulties which made it a greater nuisance than it was worth as a rule. This suggestion works well in my hands and in the hands of a few confreres who have tried it out and it is both inexpensive and a time saver.

1513 Broadway

AN ATRAUMATIC TYPE OF SURGICAL NEEDLE

HERBERT M. ILL, M.D., NEWARK, N. J.

For the past few years I have been dissatisfied with the eye in the surgical needle because it necessitates doubling the catgut at that point, with the resulting resistance of pulling the catgut through the tissue. Therefore I have devised an atraumatic type of needle, which can be used repeatedly.

Making use of the fact that catgut swells in water, I thought of drilling a hole in the end of a needle just large enough to



Atraumatic type of surgical needle. A open end of needle for catgut, B swollen catgut as in needle.

admit the contracted catgut as found in the sterile ampule, and having irregularities in the sides of the wall to allow for swelling of the gut to form resistance from pulling it out. After considerable experimentation at the plant of the Driver Harris Company of Harrison, N. J., such a needle was perfected, and it has proved highly satisfactory. This needle is made for any size catgut desired, and any shape, with no greater diameter than eye needles. To remove the catgut from the needle, both are placed in 95 per cent alcohol or some other dehydrating agent for about ten minutes, thus rendering the catgut readily withdrawable. This makes the needle ready for another filling of catgut. This needle does away with the tearing of tissues made by the knuckle formed by the catgut through the eye of the needle. It can be used repeatedly.

188 Clinton Avenue.

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY OF THE AMERICAN MEDICAL ASSOCIATION HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT
H. A. CARTER, Secretary

MILWAUKEE AIR FILTER ACCEPTABLE

The Milwaukee Air Filter is manufactured by the Perfect Corporation, Milwaukee. The manufacturer claims that this machine is an efficient, relatively silent, portable machine for forced ventilation with filtered air in offices, homes and hospital rooms and is recommended as an adjunct for the relief of hay fever and pollen-borne asthma. It can be installed in any 26 inch or wider lift-sash window and requires no screws, bolts or clamps to hold it in place.

Externally the filter looks like a trapezohedron. The top and the bottom are trapezoidal and the housing is made of sheet metal. The motor and the blower fan are mounted in the narrow end on rubber mountings to eliminate the vibration. The air is drawn in through the screen protected circular opening and is forced through the filter at the opposite and wider side of the machine. The housing is so shaped that it can be mounted in any standard lift-sash window, and an adjustable filter is provided to close up the space left by the difference in the machine width and the width of the window. The filter can be conveniently replaced. The filtering surface is greatly enlarged by a plate-like construction of the material. Two types of filter can be furnished. The A filter is highly efficient and of close-woven material designed to eliminate the pollen and is recommended in the treatment of hay fever. The B filter is a more open weave and passes a larger volume of air. The firm claims that the air capacity of the standard unit using the type A filter is 8000 cubic feet per hour established by anemometer readings. The manufacturer writes:

Its efficiency as rated by the Hill test which is the only yardstick for measurement of air filter efficiency recognized by the American Society of Heating and Ventilating Engineers is 97 per cent at a face

velocity of 325 feet per minute, and since the efficiency of this type of filter increases as the free velocity decreases, we feel safe in assuming that the filtering efficiency is greater than 97 per cent

The advertising literature appears to be reasonably free from unwarranted claims

In a Council test covering a period of two days, three slides were placed directly in front of a blast of incoming air for a period of twenty-four hours. Control slides were placed in an adjoining room in approximately the same position with reference to the window and on the same side of the house

Results of Tests

Date	9/7	9/8	9/11
Milwaukee Air Filter	2	No slide	3
Controls—adjoining room	57	29	19
Outdoor air	43	91	87
Temperature	61	62	71
Air volume	120 cu ft per min		
Power	about 40 watts		
Shipping weight	about 50 lbs		

The volume of air displaced was measured by means of a Tycos anemometer. It is recognized by the investigator that the Pitot tube would probably have registered a higher value. However, it is believed that the aforementioned value is relatively correct.

The Council on Physical Therapy declares the Milwaukee Air Filter acceptable for admission to the list of accepted devices for physical therapy

Council on Pharmacy and Chemistry

REPORTS OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT
PAUL NICHOLAS LEECH, Secretary

PHYLICIN NOT ACCEPTABLE FOR N N R

Phyllicin is the name under which the Bilhuber-Knoll Corporation presented for consideration by the Council a salt of theophylline calcium salicylate, stated to have the chemical formula $C_8H_8N_4O_2 + H_2O \cdot C_6H_5CO_2Ca + H_2O$. Previously the Council had recognized the name Theocalcin for the similar salt with theobromine, since it has the advantage of being less soluble than the official theobromine sodiosalicylate. In view of this the Council voted to recognize the name Phyllicin but at the same time modified its rule concerning proprietary names to exclude the possibility of again recognizing a distinct name for an unessential or slightly different modification of an article already included in New and Nonofficial Remedies. Subsequently the Council voted to accept the product Phyllicin, provided the A M A Chemical Laboratory reported favorably on the composition.

In its report the Laboratory showed that the product was essentially a compound of theophylline and calcium salicylate with an admixture of impurities. The Laboratory further reported that from a chemical point of view Phyllicin appeared to have no marked advantage over theophylline sodio-acetate-N N R, especially as regards greater solubility, thus excluding the possible therapeutic advantage found in the analogous case of theocalcin. The Laboratory emphasized the fact that Phyllicin was not a definite compound and that, if it were found otherwise acceptable, it should be described as a product containing certain substances as impurities or as the product of chemical reaction.

The Council declared Phyllicin unacceptable for New and Nonofficial Remedies as not presenting sufficient originality in itself or sufficient advantage over theophylline sodio-acetate-N N R.

The foregoing report of the Council's action on Phyllicin was transmitted to the Bilhuber-Knoll Corporation. After considerable correspondence, the firm had not presented the evidence of originality or of chemical and therapeutic advantage required for the acceptance of Phyllicin. The firm, moreover, expressed the intention actively to market the product. The Council, therefore, reaffirmed its rejection of Phyllicin for the reasons given in this report.

Committee on Foods

REPORTS OF THE COMMITTEE

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION, AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.



RAYMOND HERTWIG, Secretary

SNOW KING BICARBONATE OF SODA (BAKING SODA)

DAIRY MAID BAKING SODA (BICARBONATE OF SODA)

Manufacturer—The Snow King Baking Powder Company, Cincinnati

Description—Packaged bicarbonate of soda (U S P)

Manufacture—Sodium bicarbonate fulfilling U S P requirements is purchased in bulk lots and packed in cartons. The sodium bicarbonate is manufactured by the ammonia-soda process. Carbon dioxide is pumped into a salt brine saturated with ammonia, sodium bicarbonate and ammonium chloride are formed by the reaction, and the sodium bicarbonate, being least soluble in the solution, precipitates out. The crude bicarbonate is separated from the mother liquor and dissolved in water, the ammonia present is steam distilled. Calcium and magnesium salts impurities separate out during this treatment. The solution is filtered, the filtrate is treated with carbon dioxide, which precipitates the sodium bicarbonate in a very pure form. The pure sodium bicarbonate is filtered from the mother liquor, dried and packed in barrels.

Analysis (submitted by manufacturer) —

	per cent
Moisture	0.3
Sodium bicarbonate (NaHCO ₃)	99.3
Total carbon dioxide (CO ₂)	52.2
Sodium carbonate (Na ₂ CO ₃)	0.4
Sodium chloride (NaCl)	0.003
Poisonous metals	none

Complies with all U S P analytic requirements

Claims of Manufacturer—Intended for baking, cooking and home uses of baking soda

SUNRISE BREAD (SLICED)

Manufacturer—Log Cabin Baking Company, Oroville, Calif

Description—A white bread made by the sponge dough method (method described in THE JOURNAL, March 5, 1932, p 817), prepared from patent flour, water, sucrose, shortening, powdered skim milk, salt, yeast and a yeast food containing calcium sulphate, ammonium chloride, sodium chloride and potassium bromate.

Claims of Manufacturer—Conforms to the United States Department of Agriculture definition and standard for white bread.

ARBITRATOR PATENT FLOUR SELF RISING (BLEACHED)

Manufacturer—Saxony Mills, St. Louis

Description—A self rising flour containing a patent flour of soft winter wheat (bleached), calcium acid phosphate, baking soda and salt.

Manufacture—The ingredients are mixed in definite proportions in a batch mixer and automatically packed in cotton sacks.

Claims of Manufacturer—This self rising flour is designed for general home baking, especially cakes and biscuits.

VICTORY BRAND TOMATO JUICE

Distributor—New England Importation Corporation, Boston

Packer—Vincennes Packing Corporation, Vincennes, Ind

Description—Pasteurized tomato juice with a small amount of added salt, retains in high degree the vitamin content of the raw juice, the same as Alice of Old Vincennes Tomato Juice (THE JOURNAL, Feb 20, 1932, p 640)

HOSPITAL SERVICE IN THE UNITED STATES

TWELFTH ANNUAL PRESENTATION OF HOSPITAL DATA BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS OF THE AMERICAN MEDICAL ASSOCIATION

The annual census of hospitals, just completed by the Council on Medical Education and Hospitals for the period generally corresponding with the calendar year 1932, shows a considerable shift of patronage from the privately owned and controlled hospitals to those that are supported by taxation, in general a greater volume of work was done in hospitals than in the previous year

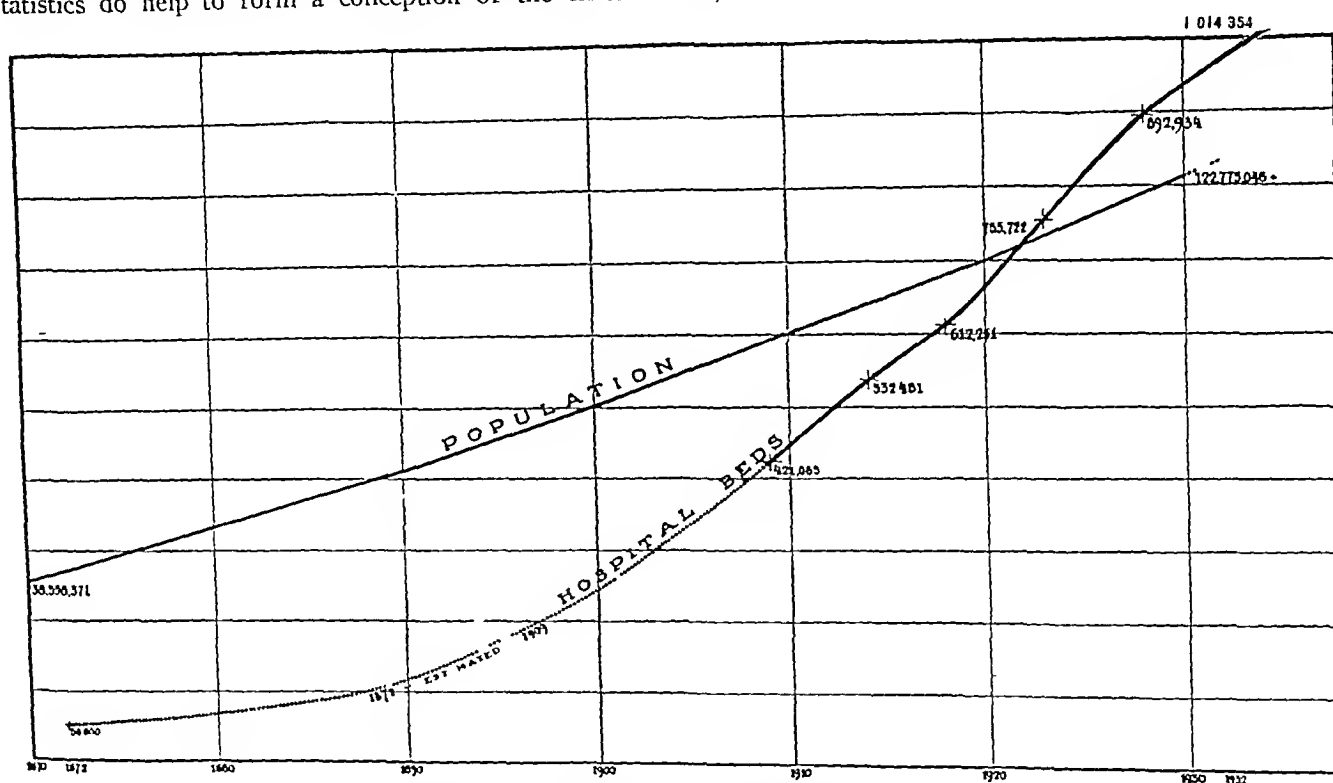
The census was begun late in 1932 and completed in February, 1933. The data from each hospital are for the last fiscal year preceding the census.

Although figures do not give an adequate picture of the work that is done by physicians, nurses, administrative staff, technicians and others in hospitals, yet statistics do help to form a conception of the extent

4 The 4,305 general hospitals, on the average, were 63.3 per cent filled. The 776 general hospitals run by government—federal, state and local—were 77.1 per cent occupied, while the 3,529 nongovernment general hospitals were only 55.9 per cent filled. All general hospitals had an average of 145,048 unoccupied beds, nervous and mental hospitals, 24,075, and tuberculosis hospitals, 10,154.

5 The total number of patients admitted to all hospitals in the United States for the fiscal year 1932 is 7,228,151. The average census of all hospitals was 808,445. The general hospitals alone admitted 6,303,573 bed patients.

6 The total number of births in all hospitals was 710,884.



HOSPITAL CAPACITY OUTSTRIPS POPULATION

The chart was made by placing on the diagram of increase in population since 1872 a curve representing the increase in capacity of hospitals for the same period. Capacity of hospitals since 1909 indicated by a black line is known. Before that shown by a dotted line it is unknown except for 50,000 beds established by census in 1872 (*Proceedings A. M. A.* 1873). Using the census figures for 1872, the estimate from that time to 1909 and census figures since 1909 the proportion of hospital beds to population has increased from one bed for 124—a sixfold increase in ratio. That building is outstripping population there can be no question. Data on which the chart is based are given in the text.

to which the care of the sick has been transferred to hospitals. A few of the many facts gleaned from the annual census of hospitals therefore, are mentioned in this article. A mass of information is given also in the list of registered hospitals farther on in this issue.

1 This year for the first time, the total rated capacity of all hospitals exceeds one million. There are 1,014,354 beds.

2 There are 6,562 registered hospitals, as compared with 6,613 for the last previous census.

3 There were 69,199 unoccupied beds in federal, state and local government hospitals and 136,710 in nongovernment hospitals—a total of 205,909 idle beds.

7 The furnishing of medical care and skill was done by 113,730 physicians, of whom 101,518 are on attending staffs, 2,018 are resident physicians, 7,757 are interns (including second year interns), and 2,437 are physicians serving as hospital executives.

8 There are 1,656 schools of nursing accredited by state boards of nurse examiners and 278 that are operating without that recognition, a total of 1,934.

9 There were 86,649 student nurses enrolled, 48,567 graduate registered nurses employed on a full time basis for nursing and 8,029 graduate nurses otherwise employed.

(Continued on page 892)

Table 1 —Number and Capacity of Hospitals According to Agencies Owning or in Control

Marginal No	State	Federal				State				County				City				City and County				Total Government Owned*				Marginal No		
		Hospitals	Beds	Basinets	Patients Admitted	Average Census	Hospitals	Beds	Basinets	Patients Admitted	Average Census	Hospitals	Beds	Basinets	Patients Admitted	Average Census	Hospitals	Beds	Basinets	Patients Admitted	Average Census	Hospitals	Beds	Basinets	Patients Admitted	Average Census		
1	Alabama	5	1,238	2,904	1,006	4,752	8	5,272	4,752	4,752	427	5	375	42	0,612	173	5	375	42	0,612	173	24	7,530	86	26,124	6,281	1	
2	Arizona	21	1,841	11,735	1,301	272	3	930	869	2,523	325	3	133	20	3,607	84	3	133	20	3,607	84	24	3,231	74	14,550	2,493	2	
3	Arkansas	2	928	860	845	7	4,114	3	330	11	1,976	237	3	137	2	7	7	3	137	2	7	13	5,594	71	8,850	5,129	3	
4	California	19	6,803	22	32,713	5,019	17	20,821	32	17,340	10,823	61	12,467	401	116,146	10,823	5	2,144	9	12,340	1,588	104	42,372	496	178,352	37,441	4	
5	Colorado	4	2,405	10	6,682	1,668	8	3,752	20	11,010	3,370	4	211	17	2,211	140	2	540	60	12,615	412	19	6,918	107	32,327	5,610	5	
6	Connecticut	1	259	2,124	203	5,530	14	7,825	12	5,530	8,070	6	657	25	4,854	640	1	540	60	12,615	412	21	9,041	37	12,508	8,922	6	
7	Delaware	1	23	189	6	505	4	1,280	505	1,110		1	650	54	12,905	488	1	650	54	12,905	488	5	1,317	7	694	1,116	7	
8	Dist of Columbia	9	8,544	62	21,212	7,566	2	292	433	229		1	650	54	12,905	488	1	650	54	12,905	488	12	9,486	116	34,550	8,283	8	
9	Florida	4	630	5,062	547	2,528	0	3,652	4,224	4,224	323	6	456	41	5,673	323	6	456	41	5,673	323	28	5,391	162	20,262	5,356	9	
10	Georgia	8	1,012	13	12,753	1,335	0	6,261	3,417	6,126	65	4	172	18	778	65	9	1,232	103	20,648	981	3	336	33	7,051	108	10	
11	Idaho	4	368	6	1,583	300	6	1,332	740	1,137	67	3	92	16	2,214	67	2	30	2	59	1	2	78	13	1,850	35	11	
12	Illinois	10	5,007	0	22,186	4,430	24	32,257	25	25,247	30,333	26	6,382	154	70,102	5,046	25	2,750	164	29,164	1,072	83	46,495	352	152,609	41,790	12	
13	Indiana	4	1,721	4	1,568	1,446	22	11,415	35	10,154	10,877	34	2,340	164	15,009	1,658	4	600	52	0,660	445	43	12,650	209	31,699	11,441	13	
14	Iowa	3	990	1,168	909	1,168	18	10,908	134	21,047	9,800	13	856	44	6,431	670	7	173	41	2,870	49	1	10	20	183	4	14	
15	Kansas	5	947	28	8,145	687	16	6,809	21	7,712	6,362	13	636	42	2,425	157	7	173	41	2,870	49	32	9,377	135	32,741	8,472	15	
16	Kentucky	6	862	4,837	1,171	5,192	9	6,808	5,192	6,557	192	6	284	20	3,093	192	7	784	79	16,650	534	13	8,957	106	63,339	9,052	16	
17	Louisiana	1	1,436	6,053	1,171	7,271	7	7,271	101	56,341	7,794	2	125	5	562	72	2	125	5	562	72	1	125	5	562	72	17	
18	Maine	3	425	1,766	209	923	6	3,120	923	3,375		3	155	18	1,325	104	3	155	18	1,325	104	12	8,700	18	4,004	3,778	18	
19	Maryland	8	1,680	5,542	1,321	11,792	18	7,668	45	11,792	7,280	7	1,032	29	2,558	102	6	1,437	18	7,384	1,157	37	11,184	112	29,638	10,027	10	
20	Massachusetts	8	2,775	6	9,664	2,346	30	27,890	40	15,454	29,303	7	1,032	29	2,558	102	37	5,657	417	74,329	4,440	1	128	20	2,392	77	21	
21	Michigan	6	1,048	2,860	893	46	74,343	15,746	27	10,379	36	14,278	9,108	36	4,607	337	36	4,607	337	68,324	3,701	2	44	5	833	27	20	
22	Minnesota	8	1,771	21	4,354	1,258	16	13,706	30	11,343	11,723	17	1,688	10	3,128	1,578	11	1,000	87	12,250	818	93	34,375	480	121,021	29,483	21	
23	Mississippi	2	625	6	946	522	12	5,164	48	20,666	4,631	1	24	4	285	5	15	5,835	188	49,661	6,703	55	18,546	217	42,143	16,113	22	
24	Missouri	6	1,077	3	7,580	990	11	8,654	12	0,066	6,317	5	405	71	4,883	220	15	5,835	188	49,661	6,703	16	5,835	64	22,267	5,216	23	
25	Montana	7	526	27	4,358	311	5	2,085	431	2,077	186	5	234	16	1,816	186	3	67	6	328	19	37	15,971	274	68,216	16,239	24	
26	Nebraska	6	347	2	3,288	203	12	5,657	32	5,372	5,325	11	323	51	2,330	225	4	181	20	1,491	61	18	2,880	43	6,653	2,581	25	
27	Nevada	4	142	3	788	95	1	295	86	280		3	67	6	328	19	11	2,408	134	39,574	1,851	22	6,460	49	10,785	5,744	26	
28	New Hampshire	1	200	1,584	141	4	2,520	4	2,520	666	2,422	4	181	20	1,491	61	4	181	20	1,491	61	12	780	54	3,213	606	27	
29	New Jersey	3	980	1,793	725	15	12,748	15	12,748	3	9,460	12,204	23	8,695	310	14,025	7,365	4	181	20	1,491	61	12	780	54	3,213	606	28
30	New Mexico	13	1,519	23	5,818	980	42	74,048	42	31,660	66,039	49	5,635	74	16,038	4,522	50	18,793	778	237,153	18,043	168	105,115	017	314,078	94,295	29	
31	New York	22	6,314	12	27,930	4,660	42	74,048	42	31,660	66,039	49	5,635	74	16,038	4,522	50	18,793	778	237,153	18,043	168	105,115	017	314,078	94,295	30	
32	North Carolina	3	717	8	2,684	631	7	7,341	2,370	6,723	622	3	291	38	4,036	105	3	291	38	4,036	105	20	9,280	90	15,708	8,182	31	
33	North Dakota	5	200	11	3,122	130	4	2,593	1,273	2,488	55	2	80	3	133	55	2	80	3	133	55	20	9,280	90	15,708	8,182	32	
34	Ohio	0	0	0	0	0	23	23,720	20	18,993	23,463	23	2,821	65	8,268	2,270	23	3,927	304	43,010	2,890	75	32,566	401	80,223	30,578	33	
35	Oklahoma	12	1,133	39	12,320	852	13	8,142	22	12,468	6,092	1	50	10	920	20	8	275	29	3,052	57	34	9,600	100	28,760	7,921	34	
36	Oregon	4	712	2	4,405	017	10	4,802	3,660	4,442	4,442	32	23,325	135	4,177	4,442	12	11,500	60	32,051	0,210	74	45,838	209	87,043	40,019	35	
37	Pennsylvania	2	451	2,335	251	7	4,177	40	2,154	3,070	4,075	1	265	11	3,125	77	1	265	11	3,125	77	10	4,693	49	7,220	4,417	36	
38	Rhode Island	2	246	3	1,806	138	6	4,252	1	1,507	4,075	8	633	40	8,381	420	2	139	11	3,125	77	10	4,693	49	7,220	4,417	37	
39	South Carolina	2	246	3	1,806	138	6	4,252	1	1,507	4,075	8	633	40	8,381	420	2	139	11	3,125	77	10	4,693	49	7,220	4,417	38	
40	South Dakota	10	1,000	25	5,025	843	4	2,470	670	2,092	7	1	17	4	437	7	1	15	5	171	3	16	3,511	34	6,312	3,055	39	
41	Tennessee	1	1,387	7,516	1,000	5,664	9	5,288	5,664	4,314	4,314	7	1,857	74	1,972	1,680	9	811	89	19,557	608	4	583	37	7,102	506	40	
42	Texas	11	2,288	25	16,614	1,512	15	13,222	3	9,320	12,754	14	545	74	5,647	308	4	773	77	11,551	387	27	0,926	128	41,811	8,008	41	
43	Utah	1	107	515	21	253	3	1,263	253	1,101	1,101	1	25	33	4,322	183	1	25	33	4,322	183	64	18,409	300	76,003	16,245	42	
44	Vermont	1	62	668	21	1,145	6	1,491	1,145	1,292	42	1	47	4	61	42	8	1,679	33	5,540	1,321	8	1,679	33	5,540	1,321	43	
45	Virginia	8	2,261	6	13,674	1,643	15	9,585	26	13,882	9,331	1	45	5	700	25	4	875	36	3,375	526	8	1,600	33	5,540	1,321	44	
46	Washington	13	2,253	8	10,647	1,587	13	4,800	24	7,651	4,429	9	1,179	20	3,841	1,036	4	444	4	3,347	287	28	12,766	73	31,721	11,525	45	
47	West Virginia	3	1,337	6	5,747	1,030	13	4,800	24	7,651	4,429	9	1,179	20	3,841	1,036	1	304	51	7,379	341	36	10,773	70	27,647	0,410	46	
48	Wisconsin	3	563	14	2,962	529	4	916	8	1,721	760	60	11,904	90	18,528	11,130	12	820	72	16,812	244	22	5,218	58	14,132	4,636	47	
49	Wyoming	3	563	14	2,962	529	4	916	8	1,721	760	60	11,904	90	18,528	11,130	12	820	72	16,812	244	11	1,773	72	0,314	1,436	48	
50	Totals	301	74,151	401	326,028	57,084	568	442,601	1,014	464,752	417,232	514	84,534	2,116	384,265	71,089	358	69,551	3,529	767,076	67,582	1,804	670,367	7,660				

Table 1—Number and Capacity of Hospitals According to Agencies Owning or in Control—Continued

Marginal No	State	Church				Fraternal				Industrial				Individual or Partnership				Independent				Total Non-Government Owned*				Marginal No								
		Hospitals	Beds	Patients Admitted	Average Census	Hospitals	Beds	Patients Admitted	Average Census	Hospitals	Beds	Patients Admitted	Average Census	Hospitals	Beds	Patients Admitted	Average Census	Hospitals	Beds	Patients Admitted	Average Census	Hospitals	Beds	Patients Admitted	Average Census									
1	Alabama	6	712	62	14,810	744	3	171	7	1,472	90	1	65	5	941	38	26	102	6	1,134	63	11	1,567	244	32	3,332	308	51,770	1,535	1				
2	Alaska	16	831	89	16,401	463	4	222	16	4,146	142	3	332	34	5,960	216	29	21	503	10	1,469	252	3	135	1	720	143	10,665	900	2				
3	Arizona	10	1,017	89	16,269	418	4	222	16	4,146	142	3	332	34	5,960	216	29	21	503	10	1,469	252	3	135	1	720	143	10,665	900	3				
4	Arkansas	9	1,017	89	16,269	418	4	222	16	4,146	142	3	332	34	5,960	216	29	21	503	10	1,469	252	3	135	1	720	143	10,665	900	4				
5	California	41	4,231	703	83,773	2,700	6	696	30	7,691	475	7	689	17	7,860	477	30	141	3,542	508	44,718	1,761	107	7,892	1,143	129,004	2,473	276,087	10,017	5				
6	Colorado	40	4,231	703	83,773	2,700	6	696	30	7,691	475	7	689	17	7,860	477	30	141	3,542	508	44,718	1,761	107	7,892	1,143	129,004	2,473	276,087	10,017	6				
7	Connecticut	6	1,141	294	26,827	863	1	244	1	244	168	4	358	20	3,410	143	14	461	8	1,540	325	48	5,577	704	78,686	3,682	7	101	010	107,303	4,870	7		
8	Delaware	1	70	12	1,034	65	3	171	7	1,472	90	1	65	5	941	38	6	102	6	1,134	63	11	1,567	244	32	3,332	308	51,770	1,535	8				
9	District of Columbia	5	74	117	18,972	515	3	171	7	1,472	90	1	65	5	941	38	26	102	6	1,134	63	11	1,567	244	32	3,332	308	51,770	1,535	9				
10	Florida	6	615	91	7,183	282	1	32	254	30	2	137	2	421	77	42	1,065	113	10,087	470	70	29	1,181	163	14,742	424	65	2,650	338	30,827	970	10		
11	Georgia	6	546	76	19,492	432	1	32	254	30	2	137	2	421	77	42	1,065	113	10,087	470	70	29	1,181	163	14,742	424	65	2,650	338	30,827	970	11		
12	Idaho	11	61	114	12,771	739	6	437	25	5,014	290	5	398	23	5,933	285	21	390	61	3,128	104	105	19,604	1,718	108,078	5,842	252	342	3,888	30,031	12			
13	Illinois	90	11,691	1,021	203,451	4,298	2	174	148	110	2	150	480	44	4,633	112	46	1,082	151	10,836	622	105	19,604	1,718	108,078	5,842	252	342	3,888	30,031	13			
14	Indiana	70	4,041	561	64,114	1,630	2	174	148	110	2	150	480	44	4,633	112	46	1,082	151	10,836	622	105	19,604	1,718	108,078	5,842	252	342	3,888	30,031	14			
15	Iowa	4	4,211	169	63,681	2,301	2	64	94	182	1	60	350	17	858	172	55	858	172	14,935	356	25	1,174	104	10,070	563	123	6,390	872	104,083	2,941	15		
16	Kansas	7	2,900	420	42,055	1,060	1	240	1	1,604	70	3	253	800	144	30	501	90	6,678	238	24	890	122	12,343	890	95	4,764	641	63,610	2,411	16			
17	Kentucky	20	2,057	207	27,760	1,121	1	16	1	1,604	70	3	253	800	144	30	501	90	6,678	238	24	890	122	12,343	890	95	4,764	641	63,610	2,411	17			
18	Louisiana	10	1,311	122	26,200	850	2	122	13	1,401	96	3	160	11	3,068	110	14	382	33	7,147	138	22	1,441	110	36,082	713	51	3,442	297	52,830	1,643	18		
19	Maine	6	1,017	144	26,803	1,558	1	45	1	45	4	4	143	12	2,387	62	25	503	181	7,901	276	31	1,740	259	39,410	1,034	61	2,605	430	39,646	1,492	19		
20	Maryland	18	2,436	375	40,066	1,613	1	60	351	63	2	80	13	880	10	48	940	106	8,641	470	143	12,168	2,142	108,776	8,073	207	15,664	2,746	248,644	10,280	20			
21	Massachusetts	21	1,971	628	67,743	2,133	1	60	351	63	2	80	13	880	10	48	940	106	8,641	470	143	12,168	2,142	108,776	8,073	207	15,664	2,746	248,644	10,280	21			
22	Michigan	41	1,076	612	74,843	2,136	1	60	351	63	2	80	13	880	10	48	940	106	8,641	470	143	12,168	2,142	108,776	8,073	207	15,664	2,746	248,644	10,280	22			
23	Minnesota	7	5,701	5	7,860	100	1	15	206	6	1	15	4	405	9	72	1,124	259	10,768	408	40	3,306	430	66,363	1,012	164	8,670	1,705	181,302	4,816	23			
24	Mississippi	37	5,701	5	7,860	100	1	15	206	6	1	15	4	405	9	72	1,124	259	10,768	408	40	3,306	430	66,363	1,012	164	8,670	1,705	181,302	4,816	24			
25	Missouri	22	1,649	201	24,347	813	4	368	1,208	303	3	101	12	3,197	70	15	253	42	3,137	103	5	293	35	2,763	92	45	2,270	333	33,854	1,087	25			
26	Montana	21	2,215	254	38,840	1,283	1	45	1	45	4	4	143	12	2,387	62	25	503	181	7,901	276	31	1,740	259	39,410	1,034	61	2,605	430	39,646	1,492	26		
27	Nebraska	1	52	12	1,534	37	1	45	1	45	4	4	143	12	2,387	62	25	503	181	7,901	276	31	1,740	259	39,410	1,034	61	2,605	430	39,646	1,492	27		
28	New Hampshire	6	1,547	66	6,280	290	2	160	430	97	1	30	7	563	10	29	701	60	6,348	411	27	1,830	293	21,680	707	33	1,665	302	28,004	698	28			
29	New Jersey	20	1,547	66	6,280	290	2	160	430	97	1	30	7	563	10	29	701	60	6,348	411	27	1,830	293	21,680	707	33	1,665	302	28,004	698	29			
30	New Mexico	14	1,065	71	8,540	496	6	608	4	4,503	386	2	59	10	1,108	64	5	128	8	362	72	27	1,830	293	21,680	707	33	1,665	302	28,004	698	30		
31	New York	8	1,776	1,063	180,420	3,316	0	608	4	4,503	386	2	59	10	1,108	64	5	128	8	362	72	27	1,830	293	21,680	707	33	1,665	302	28,004	698	31		
32	North Carolina	16	9,011	111	10,110	576	2	97	6	19	28	3	108	11	1,630	45	40	2,668	505	23,748	1,508	293	31,227	4,160	523,740	21,276	435	47,303	3,333	738,644	32,409	32		
33	North Dakota	16	1,683	250	25,113	860	2	97	6	19	28	3	108	11	1,630	45	40	2,668	505	23,748	1,508	293	31,227	4,160	523,740	21,276	435	47,303	3,333	738,644	32,409	33		
34	Ohio	48	6,880	978	110,017	4,470	5	455	2,428	335	2	31	1	207	4	59	1,730	100	23,687	827	10	806	85	13,066	513	62	3,402	450	53,700	1,430	34			
35	Oklahoma	8	80	130	15,968	394	3	111	16	1,733	45	1	10	1	15	1	60	1,730	100	23,687	827	10	806	85	13,066	513	62	3,402	450	53,700	1,430	35		
36	Oregon	14	1,625	237	31,275	631	1	60	211	58	1	30	7	563	10	29	701	60	6,348	411	27	1,830	293	21,680	707	33	1,665	302	28,004	698	36			
37	Pennsylvania	44	6,769	700	98,175	4,470	3	111	16	1,733	45	1	10	1	15	1	60	1,730	100	23,687	827	10	806	85	13,066	513	62	3,402	450	53,700	1,430	37		
38	Rhode Island	1	372	40	3,716	290	1	60	211	58	1	30	7	563	10	29	701	60	6,348	411	27	1,830	293	21,680	707	33	1,665	302	28,004	698	38			
39	South Carolina	5	273	29	4,620	135	3	138	7	1,154	98	1	25	5	401	10	13	336	40	5,860	131	24	1,864	118	10,836	700	45	2,446	343	31,897	1,064	39		
40	South Dakota	14	980	166	17,293	457	3	138	7	1,154	98	1	25	5	401	10	13	336	40	5,860	131	24	1,864	118	10,836	700	45	2,446	343	31,897	1,064	40		
41	Tennessee	7	1,114	172	27,063	688	6	347	18	2,475	235	2	62	7	1,699	34	38	703	139	8,008	328	37	2,928	108	35,612	1,271	82	4	1,905	331	30,856	820	41	
42	Texas	7	1,114	172	27,063	688	6	347	18	2,475	235	2	62	7	1,699	34	38	703	139	8,008	328	37	2,928	108	35,612	1,271	82	4	1,905	331	30,856	820	42	
43	Utah	3	643	64	64,810	1,792	2	62	7	1,699	34	38	703	139	8,008	328	37	2,928	108	35,612	1,271	82	4	1,905	331	30,856	820	41	4	1,905	331	30,856	820	43
44	Vermont	1	217	23	3,088	157	1	60	211	58	1	30	7	563	10	29	701	60	6,348	411	27	1,830	293	21,680	707	33	1,665	302						

Table 2.—Number and Capacity of Hospitals According to Type of Service, Together with Number of Patients Admitted

Marginal No	STATE	General				Nervous and Mental				Tuberculosis				Maternity				Industrial				Convalescent and Rest						
		Hospitals	Beds	Basements	Patients Admitted	Average Census	Hospitals	Beds	Basements	Patients Admitted	Average Census	Hospitals	Beds	Basements	Patients Admitted	Average Census	Hospitals	Beds	Basements	Patients Admitted	Average Census	Hospitals	Beds	Basements	Patients Admitted	Average Census		
1	Alabama	69	4,757	382	64,525	2,603	4	5,026	1,718	272	831	4	239	364	185	1	50	30	120	40	2	157	78	5,960	211	93	8	1
2	Arizona	42	2,011	183	25,324	1,008	1	900	272	831	1	24	1,240	1,664	83	1	64	4	40	2	2	228	74	3,815	66	5	2	
3	Arkansas	56	2,715	242	37,245	1,203	2	4,281	1,070	407	1	1	532	74	631	1	44	4	40	2	1	1	1	1	1	1	1	
4	California	261	29,551	2,702	406,672	19,673	42	22,608	12,772	21,652	47	4,062	5,680	9,967	2,177	2,977	12	337	248	2,177	2,977	7	689	17	7,899	477	3	
5	Colorado	68	6,064	520	60,420	3,889	8	18,938	2,770	3,411	1,289	14	1,896	1,289	1,498	12	2	15	411	12	1	4	156	20	410	148	5	
6	Connecticut	40	6,291	921	108,001	4,000	15	7,199	3,018	7,666	1	1,748	1,830	1,227	2	18	20	285	8	1	7	97	121	63	0	0		
7	Delaware	9	714	106	13,935	430	2	1,167	777	1,012	128	2	122	138	98	2	10	89	2,857	88	1	65	5	941	8	1		
8	District of Columbia	18	5,526	394	70,192	3,997	3	5,973	973	5,165	3	3	260	303	209	2	10	89	2,857	88	1	65	5	941	8	1		
9	Florida	71	4,071	508	57,187	2,103	6	9,024	1,978	4,211	773	1	8	6	23	5	2	22	18	23	5	2	1	1	1	1		
10	Georgia	84	4,689	500	78,596	2,670	7	6,053	1,709	6,143	0	695	770	507	1	8	20	74	3	1	1	1	1	1	1	1		
11	Idaho	45	1,547	220	23,445	787	3	1,270	293	1,115	1	1	192	129	172	1	8	20	74	3	1	1	1	1	1	1		
12	Illinois	228	29,848	3,020	484,304	18,295	70	33,411	15,510	81,307	27	7,758	4,910	9,217	8	579	502	7,781	221	5	228	23	5,973	235	11	11		
13	Indiana	95	7,587	1,071	119,138	3,670	15	12,077	2,359	11,805	8	1,242	1,396	1,183	2	90	56	1,925	78	2	140	480	44	4	4	4		
14	Iowa	128	6,929	1,009	120,603	3,530	10	10,550	80	10,239	6	751	817	882	3	95	53	176	28	1	1	1	1	1	1	1		
15	Kansas	100	5,531	753	75,878	2,943	11	6,313	1,449	5,660	6	351	398	324	1	77	19	215	68	3	273	809	144	17	17	17		
16	Kentucky	77	4,817	474	73,027	2,628	9	6,717	2,017	6,908	5	1,072	1,941	944	1	53	9	91	0	7	250	19	3,975	78	1	1		
17	Louisiana	44	5,731	392	110,459	4,510	6	5,314	1,965	5,570	3	300	215	183	3	4	22	421	20	3	106	11	3,998	110	1	1		
18	Maine	58	2,902	410	41,061	1,714	4	2,695	651	935	5	545	771	485	1	8	16	110	33	1	1	1	1	1	1	1		
19	Maryland	40	5,971	571	88,540	4,087	21	9,102	3,063	8,042	8	1,109	1,770	1,240	11	401	450	6,459	254	2	70	11	820	19	14	14		
20	Massachusetts	160	19,258	2,715	291,801	11,770	31	24,542	0,638	26,401	31	4,940	8,657	4,178	14	645	210	1,515	105	14	2,336	4,486	113	13	13	13		
21	Michigan	151	18,571	1,807	252,732	12,481	10	19,852	0,257	18,153	22	7,850	3,262	3,067	3	184	110	1,293	121	3	65	18	1,007	70	23	23		
22	Minnesota	154	10,492	1,388	179,969	6,010	15	13,103	2,795	11,344	10	1,971	0	1,490	1,788	1	25	6	476	9	1	50	6	405	9	9		
23	Mississippi	64	2,794	308	53,224	1,148	4	4,594	2,251	4,379	2	524	744	763	1	25	6	476	9	1	50	6	405	9	9	9		
24	Missouri	97	10,127	1,095	170,345	6,815	18	11,538	3,420	12,314	7	1,583	1,608	1,474	0	330	324	3,949	192	3	470	5,401	181	181	181	181		
25	Montana	52	2,845	370	36,371	1,498	2	1,900	09	1,973	1	150	150	178	1	8	16	110	33	1	1	1	1	1	1	1		
26	Nebraska	87	4,433	548	66,242	2,442	5	5,082	813	4,910	1	160	175	163	1	160	16	110	33	1	1	1	1	1	1	1		
27	Nevada	15	463	72	4,208	1,073	1	325	80	289	30	49	30	49	1	55	16	110	33	1	1	1	1	1	1	1		
28	New Hampshire	73	1,894	313	30,874	1,107	2	2,380	552	2,722	2	210	251	184	1	22	18	108	8	1	1	1	1	1	1	1		
29	New Jersey	88	12,074	1,978	276,041	8,364	28	10,027	5	8,847	17,818	17	3,202	4,342	2,682	2	284	284	4,732	174	2	284	284	4,732	174	2		
30	New Mexico	30	1,918	172	16,507	960	7	78,873	7	30,607	71,059	60	10,047	14,784	9,119	20	1,548	1,079	28,492	1,135	20	1,548	1,079	28,492	1,135	20		
31	New York	327	48,931	0,989	801,872	35,007	71	78,873	7	30,607	71,059	60	10,047	14,784	9,119	20	1,548	1,079	28,492	1,135	20	1,548	1,079	28,492	1,135	20		
32	North Carolina	98	5,289	683	91,448	2,638	9	7,093	2,219	6,724	25	2,180	3,144	1,761	1	6	4	45	1	1	6	4	45	1	1	1		
33	North Dakota	43	2,192	312	35,676	1,099	3	2,405	429	2,748	1	241	463	218	2	20	40	244	9	2	20	40	244	9	2	2		
34	Ohio	155	17,313	2,212	295,986	11,318	31	23,071	7,017	23,942	17	2,814	3,565	2,407	12	319	219	2,911	144	12	319	219	2,911	144	12	12		
35	Oklahoma	102	4,907	519	73,889	2,495	6	7,005	2,570	0,078	6	861	1,691	722	1	22	30	247	12	1	22	30	247	12	1	1		
36	Oregon	56	3,499	516	58,088	2,144	0	4,590	1,238	4,370	4	501	451	391	1	115	34	324	12	1	115	34	324	12	1	1		
37	Pennsylvania	225	30,975	3,014	555,501	20,348	50	37,897	11,360	34,801	21	4,029	5,988	3,393	12	500	420	4,164	275	1	155	155	2,621	79	1	1		
38	Rhode Island	16	3,187	247	31,321	2,298	4	2,075	872	2,850	8	562	709	477	1	155	155	2,621	79	1	155	155	2,621	79	1	1		
39	South Carolina	43	2,545	243	42,460	1,397	3	3,923	1,390	9,829	3	562	709	477	1	155	155	2,621	79	1	155	155	2,621	79	1	1		
40	South Dakota	68	2,790	360	35,250	1,560	3	2,349	421	2,102	1	192	146	170	2	109	23	1,738	66	2	109	23	1,738	66	2	2		
41	Tennessee	98	6,111	474	89,806	3,967	10	5,927	2,814	4,944	8	1,101	972	943	3	45	21	159	14	1	468	6	4,708	190	1	1		
42	Texas	230	11,950	1,223	208,582	6,119	15	12,004	3,923	12,010	18	2,365	3,440	1,848	1	20	16	236	12	1	20	16	236	12	1	1		
43	Utah	27	1,633	201	20,604	787	3	1,253	283	1,103	3	170	289	149	1	109	23	1,738	66	2	109	23	1,738	66	2	2		
44	Vermont	21	1,115	168	21,710	697	4	2,000	627	1,854	4	2,000	627	1,854	1	109	23	1,738	66	2	109	23	1,738	66	2	2		
45	Virginia	78	7,389	541	106,047	4,545	8	8,513	1,914	8,492	7	1,189	1,304	1,016	1	109	23	1,738	66	2	109	23	1,738	66	2	2		
46	Washington	81	0,883	966	104,049	3,804	9	7,007	1,752	6,570	10	965	1,467	865	1	109	23	1,738	66	2	109	23	1,738	66	2	2		
47	West Virginia	59	4,087	400	70,231	1,997	5	3,945	1,777	7,654	7	760	809	716	3	95	60	347	79	2	62	7	1,599	34	4	4		
48	Wisconsin	131	11,284	1,631	187,775	6,718	52	14,448	4,558	14,025	22	1,955	2,469	1,808	1	0	35	162	5	1	2	28	8	454	14	4		
49	Wyoming	23	870	172	14,160	413	3	1,221	310	1,198	27	20	27	20	1	109	23	1,738	66	2	109	23	1,738	66	2	2		
50	Totals	(1912) 4,205	395,543	46,588	6,701,573	250,495	634	479,548	92	109,851	455,477	512	69,670	74	93,112	59,522	130	7,538	4,086	93,459	4,810	122	0,078	390	79,715	2,883	132	
51		(1911) 4,209	384,333	46,414	6,321,801	247,560	587	451,245	92	109,851	455,477	512	69,670	74	93,112	59,522	145	8,078	5,032	91,496	4,737	145	8,078	5,032	91,496	4,737	145	
52		(1930) 4,302	371,699	43,941	6,040,784	240,784	581	437,919	92	109,851	455,477	512	69,670	74	93,112	59,522	151	8,027	4,486	91,416	3,118	151	8,027	4,486	91,416	3,118	151	
53		(1929) 4,268	357,034	42,715	5,741,060	274,060	572	414																				

Table 2—Number and Capacity of Hospitals According to Type of Service, Together with Number of Patients Admitted—Continued

Marital No	State	Isolation			Children			Eye Ear Nose and Throat			Orthopedic			Hospital Departments of Institutions			All Other Hospitals			Totals			Mortals			
		Hospitals	Beds	Patients Admitted	Hospitals	Beds	Patients Admitted	Hospitals	Beds	Patients Admitted	Hospitals	Beds	Patients Admitted	Hospitals	Beds	Patients Admitted	Hospitals	Beds	Patients Admitted	Hospitals	Beds	Patients Admitted				
1	Alabama	1	17	425	0	1	182	6,016	120	2	110	0	274	60	4	280	1	15	78	82	10,802	464	78,303	7,800	1	
2	Alaska	1	70	300	29	1	20	630	11	1	30	103	15	1	103	1	15	77	31	115	5,010	217	43,395	2	2	
3	Arizona	1	245	6,711	172	1	50	2,880	28	2	118	660	30	3	62	463	2	31	2	280	7	2,902	2	73	3	
4	California	2	110	1,901	12	1	314	361	838	247	1	200	401	152	22	1,248	12	703	7,030	408	50,924	2,900	4,468	4	4	
5	Colorado	2	0	678	70	1	157	18	304	103	2	51	1,717	180	12	703	7	322	907	114	108	12,801	682	84,702	5	5
6	Connecticut	2	100	800	51	1	210	60	7	1	7	225	4	13	752	4,084	1	23	723	23	80	10,282	93	119,601	6	6
7	Delaware	1	182	6,016	120	1	182	6,016	120	1	182	6,016	120	1	182	6,016	1	23	723	23	14	2,027	106	14,606	7	7
8	District of Columbia	1	182	6,016	120	1	182	6,016	120	1	182	6,016	120	1	182	6,016	1	23	723	23	14	2,027	106	14,606	8	8
9	Florida	1	40	200	10	1	20	630	11	1	30	103	15	4	280	1	15	78	82	10,802	464	78,303	7,800	9	9	
10	Georgia	1	10	4	4	1	50	2,880	28	2	118	660	30	5	157	1	15	78	82	10,802	464	78,303	7,800	10	10	
11	Idaho	1	10	4	4	1	50	2,880	28	2	118	660	30	5	157	1	15	78	82	10,802	464	78,303	7,800	11	11	
12	Illinois	1	10	4	4	1	50	2,880	28	2	118	660	30	5	157	1	15	78	82	10,802	464	78,303	7,800	12	12	
13	Indiana	1	10	4	4	1	50	2,880	28	2	118	660	30	5	157	1	15	78	82	10,802	464	78,303	7,800	13	13	
14	Iowa	1	10	4	4	1	50	2,880	28	2	118	660	30	5	157	1	15	78	82	10,802	464	78,303	7,800	14	14	
15	Kansas	1	10	4	4	1	50	2,880	28	2	118	660	30	5	157	1	15	78	82	10,802	464	78,303	7,800	15	15	
16	Kentucky	1	10	4	4	1	50	2,880	28	2	118	660	30	5	157	1	15	78	82	10,802	464	78,303	7,800	16	16	
17	Louisiana	1	10	4	4	1	50	2,880	28	2	118	660	30	5	157	1	15	78	82	10,802	464	78,303	7,800	17	17	
18	Maine	1	10	4	4	1	50	2,880	28	2	118	660	30	5	157	1	15	78	82	10,802	464	78,303	7,800	18	18	
19	Maryland	1	10	4	4	1	50	2,880	28	2	118	660	30	5	157	1	15	78	82	10,802	464	78,303	7,800	19	19	
20	Massachusetts	1	10	4	4	1	50	2,880	28	2	118	660	30	5	157	1	15	78	82	10,802	464	78,303	7,800	20	20	
21	Michigan	1	10	4	4	1	50	2,880	28	2	118	660	30	5	157	1	15	78	82	10,802	464	78,303	7,800	21	21	
22	Minnesota	1	10	4	4	1	50	2,880	28	2	118	660	30	5	157	1	15	78	82	10,802	464	78,303	7,800	22	22	
23	Mississippi	1	10	4	4	1	50	2,880	28	2	118	660	30	5	157	1	15	78	82	10,802	464	78,303	7,800	23	23	
24	Missouri	1	10	4	4	1	50	2,880	28	2	118	660	30	5	157	1	15	78	82	10,802	464	78,303	7,800	24	24	
25	Montana	1	10	4	4	1	50	2,880	28	2	118	660	30	5	157	1	15	78	82	10,802	464	78,303	7,800	25	25	
26	Nebraska	1	10	4	4	1	50	2,880	28	2	118	660	30	5	157	1	15	78	82	10,802	464	78,303	7,800	26	26	
27	Nevada	1	10	4	4	1	50	2,880	28	2	118	660	30	5	157	1	15	78	82	10,802	464	78,303	7,800	27	27	
28	New Hampshire	1	10	4	4	1	50	2,880	28	2	118	660	30	5	157	1	15	78	82	10,802	464	78,303	7,800	28	28	
29	New Jersey	1	10	4	4	1	50	2,880	28	2	118	660	30	5	157	1	15	78	82	10,802	464	78,303	7,800	29	29	
30	New Mexico	1	10	4	4	1	50	2,880	28	2	118	660	30	5	157	1	15	78	82	10,802	464	78,303	7,800	30	30	
31	New York	1	10	4	4	1	50	2,880	28	2	118	660	30	5	157	1	15	78	82	10,802	464	78,303	7,800	31	31	
32	North Carolina	1	10	4	4	1	50	2,880	28	2	118	660	30	5	157	1	15	78	82	10,802	464	78,303	7,800	32	32	
33	North Dakota	1	10	4	4	1	50	2,880	28	2	118	660	30	5	157	1	15	78	82	10,802	464	78,303	7,800	33	33	
34	Ohio	1	10	4	4	1	50	2,880	28	2	118	660	30	5	157	1	15	78	82	10,802	464	78,303	7,800	34	34	
35	Oklahoma	1	10	4	4	1	50	2,880	28	2	118	660	30	5	157	1	15	78	82	10,802	464	78,303	7,800	35	35	
36	Oregon	1	10	4	4	1	50	2,880	28	2	118	660	30	5	157	1	15	78	82	10,802	464	78,303	7,800	36	36	
37	Pennsylvania	1	10	4	4	1	50	2,880	28	2	118	660	30	5	157	1	15	78	82	10,802	464	78,303	7,800	37	37	
38	Rhode Island	1	10	4	4	1	50	2,880	28	2	118	660	30	5	157	1	15	78	82	10,802	464	78,303	7,800	38	38	
39	South Carolina	1	10	4	4	1	50	2,880	28	2	118	660	30	5	157	1	15	78	82	10,802	464	78,303	7,800	39	39	
40	South Dakota	1	10	4	4	1	50	2,880	28	2	118	660	30	5	157	1	15	78	82	10,802	464	78,303	7,800	40	40	
41	Tennessee	1	10	4	4	1	50	2,880	28	2	118	660	30	5	157	1	15	78	82	10,802	464	78,303	7,800	41	41	
42	Texas	1	10	4	4	1	50	2,880	28	2	118	660	30	5	157	1	15	78	82	10,802	464	78,303	7,800	42	42	
43	Utah	1	10	4	4	1	50	2,880	28	2	118	660	30	5	157	1	15	78	82	10,802	464	78,303	7,800	43	43	
44	Vermont	1	10	4	4	1	50	2,880	28	2	118	660	30	5	157	1	15	78	82	10,802	464	78,303	7,800	44	44	
45	Virginia	1	10	4	4	1	50	2,880	28	2	118	660	30	5	157	1	15	78	82	10,802	464	78,303	7,800	45	45	
46	Washington	1	10	4	4	1	50	2,880	28	2	118	660	30	5	157	1	15	78	82	10,802	464	78,303	7,800	46	46	
47	West Virginia	1	10	4	4	1	50	2,880	28	2	118	660	30	5	157	1	15	78	82	10,802	464	78,303	7,800	47	47	
48	Wisconsin	1	10	4	4	1	50	2,880	28	2	118	660	30	5	157	1	15	78	82	10,802	464	78,303	7,800	48	48	
49	Wyoming	1	10	4	4	1	50	2,880	28	2	118	660	30	5	157	1	15	78	82	10,802	464	78,303	7,800	49	49	
50	Totals	79	714	13,874	2,888	68	5,143	1,202	83,166	3,620	68	2,718	29	110,627	1,337	60	6,682	31	802	5,259	703	23,024	133	151,021	15,131	50
51		80	7,003	40,210	2,887	69	5,403	2,000	83,410	3,823	69	2,774	27	117,702	1,444	61	6,680	37	842	5,131	484	23,421	137	151,201	15,240	51
52		85	7,003	40,210	2,887	69	5,403	2,000	83,410	3,823	69	2,774	27	117,702	1,444	61	6,680	37	842	5,131	484	23,421	137	151,201	15,240	52
53		85	7,003	40,210	2,887	69	5,403	2,000	83,410	3,823	69	2,774	27	117,702	1,444	61	6,680	37	842	5,131	484	23,421	137	151,201	15,240	53
54		85	7,003	40,210	2,887	69	5,403	2,000	83,410	3,823	69	2,774	27	117,702	1,444	61	6,680	37	842	5,131	484	23,421	137	151,201	15,240	54
55		85	7,003	40,210	2,887	69	5,403	2,000	83,410	3,823	69	2,774	27	117,702	1,444	61	6,680	37	842	5,131	484	23,421	137	151,201	15,240	55

(Continued from page 887)

10 Among the 6,562 registered hospitals, there are 4,202 that have their own laboratories and 4,599 that maintain their own x-ray departments

11 Eleven hundred and twenty-nine hospitals have dental services with 2,395 dentists attending

12 Outpatient departments are claimed by 2,269 institutions. These departments served 8,186,811 patients, who made a grand total of 28,958,213 visits for outpatient service

13 The total patient-days in all registered hospitals was 295,082,425, as compared with 283,019,540 for the previous year

14 The average length of stay in all hospitals was forty-one days, in general hospitals it was fourteen days, the same as for 1931

15 Hospitals that were not found to merit recognition and therefore were refused registration numbered 527. They are, however, mainly small institutions, their total rated capacity being only 15,791, or a little over 1 per cent of the rated capacity of all hospitals

OCCUPANCY AND CAPACITY OF HOSPITALS

The total patients admitted to all government owned hospitals, including federal, state and local, rose from 1,833,078 to 2,049,553 in the period between this and the last previous census. Admissions in city hospitals

Percentage of Beds Occupied in Hospitals According to Types of Service

	1920	1930	1931	1932
General	65.5	64.7	64.4	63.3
Nervous and mental	95.7	94.8	94.0	94.9
Tuberculosis	82.7	85.5	85.0	85.4
Maternity	92.8	93.2	95.0	93.0
Industrial	54.0	53.0	48.1	47.4
Convalescent and rest	70.9	68.3	72.3	67.4
Isolation	30.1	32.7	38.0	40.0
Children's	65.9	67.0	66.9	67.8
Eye, ear, nose and throat	47.7	53.0	52.0	49.9
Orthopedic	80.2	83.5	78.1	79.4
Hospital departments of institutions	93.0	95.5	93.9	93.2
All other hospitals	74.0	78.3	69.2	74.0
Total hospitals	80.1	79.8	79.6	79.7

grew from 689,259 to 767,096, in county hospitals from 345,236 to 384,265, in state hospitals from 388,984 to 464,752, and in federal from 301,149 to 326,628. All departments of the government increased their hospital beds during the year. There is a falling off, however, in the number of beds under combined city and county control.

Nongovernmental hospitals as a group experienced a slump in business in the period covered by this census. The total admissions in all nongovernmental hospitals were reduced from 5,322,898 to 5,178,598, a loss of 144,300 patients. The heaviest losses apparently were suffered by the church hospitals, in which the number of patients admitted fell from 2,013,352 to 1,918,214, and in the individually owned hospitals, in which the number of admissions dropped from 459,184 to 428,256. The hospitals owned by independent hospital corporations admitted 2,712,662, as compared with 2,714,406 in the previous census.

Individually owned hospitals were reduced in number from 1,560 to 1,522, industrial from 135 to 118, and the fraternal from 76 to 74.

The number of hospitals in each of the several classifications, together with the number of patients admitted by each group and the average census of those patients is given in tables 1 and 2.

Table 1 gives the facts relating to hospitals classified according to the ownership and control, including both governmental and nongovernmental hospitals.

Table 2 gives the facts for the same hospitals grouped according to the type of service, such as general, nervous and mental, tuberculosis, and maternity hospitals. At the bottom of each table are summaries for each of the last six years, affording ready comparison.

Percentage of Beds Occupied in Hospitals According to Ownership or Control

	1920	1930	1931	1932
Federal	76.8	79.2	76.5	78.2
State	94.6	93.8	94.2	94.2
County	80.7	82.2	81.2	84.1
City	74.3	75.0	70.3	82.8
City-county	80.2	81.6	82.0	72.4
Governmental	88.9	88.8	88.7	89.8
Church	66.7	64.2	63.2	59.6
Fraternal	68.7	67.4	69.0	66.8
Industrial	54.4	53.1	48.2	47.7
Individual or partnership	54.2	51.7	48.7	45.6
Independent associations	65.9	65.4	64.3	61.3
Nongovernmental	64.6	63.2	61.9	59.2
All hospitals	80.1	79.8	79.6	79.7

The load carried by general hospitals is, for the most part, rather constant and regular. They decreased from 4,322 in 1927 to 4,305 in 1932, but the bed capacity in the same time increased from 345,364 to 395,543. There was a corresponding increase in the number of bassinets and the average number of patients. The number of patients admitted to general hospitals dropped from 6,321,861 last census to 6,303,573 this census.

Unoccupied Beds in Hospitals

	Unoccupied Beds (Average)		
	1920	1930	1932
(I) According to Ownership or Control			
Federal	13,868	13,082	16,167
State	21,064	25,030	25,809
County	12,625	13,086	13,445
City	14,688	15,184	11,969
City-county	2,807	2,607	2,249
Total governmental	65,652	68,989	69,109
Church	37,785	41,684	47,436
Fraternal	1,656	1,827	1,844
Industrial	3,107	3,145	3,171
Individual or partnership	17,313	18,609	19,460
Independent associations	54,704	58,233	64,800
Total nongovernmental	114,715	121,498	136,710
Total unoccupied beds, all hospitals	180,367	192,487	205,819
(II) According to Type of Service			
General	123,025	131,225	145,048
Nervous and mental	18,079	22,877	24,076
Tuberculosis	10,603	9,568	10,154
Maternity	2,022	2,401	2,748
Industrial	3,180	3,229	3,191
Convalescent and rest	1,886	2,340	1,013
Isolation	4,745	5,118	4,456
Children's	1,857	1,841	1,724
Eye, ear, nose and throat	1,383	1,269	1,361
Orthopedic	1,175	1,045	1,363
Hospital departments of institutions	9,148	9,377	8,793
All other hospitals	2,364	2,107	1,689
Total unoccupied beds, all hospitals	180,367	192,487	205,819

With few exceptions, the total average percentage of beds occupied has not varied greatly from year to year. There has, however, been in recent years a decided shift of patronage from pay hospitals to non-pay hospitals. This shift has great significance for private hospitals because of the economic distress resulting from their lessened financial income.

Increases in hospitals for nervous and mental patients have been noted every year in these columns. Now,

in particular, special attention is called to increases in the number of these hospitals, their capacity and their patient population. A very thorough census of those hospitals was obtained by reports and by visits of representatives of the Council to nearly all of them.

Summary of Growth of Hospitals, 1909 to 1932

	Federal Hospitals		State Hospitals		All Other Hospitals		Total	
	Number	Capacity	Number	Capacity	Number	Capacity	Number	Capacity
1909	71	8,827	232	189,040	4,056	223,180	4,359	421,065
1914	93	12,602	294	232,834	4,650	287,040	5,037	532,481
1918	110	18,810	303	262,254	4,910	331,182	5,323	612,201
1923	220	53,860	601	302,208	6,009	399,045	6,830	755,722
1928	294	61,765	955	369,750	5,963	431,410	6,862	899,934
1931	291	69,170	576	419,282	5,740	485,663	6,613	974,115
1932	301	74,151	568	442,601	5,693	497,602	6,562	1,014,354

Additional facts on nervous and mental hospitals are given farther on in this article. The fact that the special survey was begun two years ago and recently completed will explain why the figures given under that heading vary slightly from those given in the column under nervous and mental in table 2, which was derived from the recently completed regular annual census of all hospitals.

The facts relating to capacity and the patient population in all other hospitals, such as maternity, industrial, convalescent and rest isolation, children's, eye ear, nose and throat, and orthopedic are readily noted in the accompanying tables. There are 136 maternity hospitals as compared with 178 six years ago, but in the same time the capacity has increased from 5,747 beds to 7,558 beds. Industrial hospitals have decreased both in number and in capacity as have also the hospitals for convalescence and rest, isolation, and eye ear nose and throat. Children's hospitals number fifty-eight, exactly as they did six years ago, but there has been a slight increase in their capacity.

MATERNITY SERVICE IN HOSPITALS

The total number of babies born in all hospitals for the period under survey was 710,884. In comparison with our last report there is an increase of 1,995, whereas the increase in the number of births in hospitals from 1929 to 1931 was at the rate of 45,000 a year. It would appear, then, that during the year 1932 childbirth was accomplished at home in some 43,000 cases which in normal times might have gone to hospitals. The number of babies born in maternity hospitals was one twelfth of the number in maternity departments of general hospitals. Among the 710,884 hospital births there were in general hospitals 651,757, maternity hospitals 54,688, industrial hospitals 3,579, and all other hospitals 860.

PHYSICIANS CONNECTED WITH HOSPITALS

Each hospital in cooperation with the census furnished the names of the physicians on the staff as well as those acting in other capacities. In cases of hospitals reporting their staffs for the first time the record of each physician is traced through the biographic file of the American Medical Association.

The accompanying table will show the number of physicians connected with hospitals in various capacities such as attending staff, resident physician, intern and superintendent, for each of the different states as well as in total.

It is found that a vast majority of all physicians accounted for here are graduates of class A medical schools or schools that were in good standing at the

time of graduation. The number of physicians on staffs, 101,518, is an approximation, based on a count of names of individual physicians furnished by hospitals, and elimination of duplicates. It was found in 1928 that there were 100 physicians for every 134 names returned on the staff lists in ten states where an actual count was made by the Committee on the Costs of Medical Care. It is on that basis that the present number of staff physicians, 101,518, has been obtained.

Physicians serving as administrators show an increase over last year from 2,346 to 2,437. Interns increased from 7,054 to 7,757. Among resident physicians there is an apparent decrease from 4,580 to 2,018, and this is due to the change in the method by which we are this year including as resident physicians those that are serving on an educational basis, and as staff physicians those residents that are hired for regular staff service.

Physicians Connected with Hospitals

State	Physicians Serving as Super Intendents		In terms	Resident Physi cians	Staff*	Total, 1932	Total 1928
Alabama	35	45	14	1 051	1,145	900	
Arizona	40	2		421	463	364	
Arkansas	35	21	1	832	880	603	
California	145	477	149	7,330	8 101	6 422	
Colorado	48	43	25	1 082	2 098	1 418	
Connecticut	35	145	34	1 686	1 900	1 351	
Delaware	4	19	8	312	343	180	
Dist. of Columbia	90	121	30	1 178	1 349	825	
Florida	30	37	6	1,077	1 150	729	
Georgia	52	93	18	1 529	1 692	1 343	
Idaho	23	1	2	221	247	200	
Illinois	100	566	105	6 646	7 450	5 467	
Indiana	41	112	29	2,536	2,718	1 990	
Iowa	67	80	26	2 001	2,164	1,865	
Kansas	36	35	1	1 405	1 477	1 141	
Kentucky	51	52	27	1 343	1 473	1 084	
Louisiana	25	100	32	1 291	1 468	1 050	
Maine	27	9		634	670	645	
Maryland	38	237	118	1,365	1 758	2,041	
Massachusetts	109	392	224	5 722	6,447	5 770	
Michigan	91	334	111	8 911	4 447	3 425	
Minnesota	91	167	50	2 424	2,738	2 543	
Mississippi	30	0	3	530	581	480	
Missouri	64	343	46	3 500	3 953	2 919	
Montana	26	5	5	352	388	304	
Nebraska	43	63	4	1,038	1 188	820	
Nevada	15	1		97	113	84	
New Hampshire	8	4		473	485	402	
New Jersey	63	363	40	399	865	3,099	
New Mexico	27		1	198	226	202	
New York	217	1 773	439	17 300	19 729	15 163	
North Carolina	60	65	24	1 542	1 683	1,209	
North Dakota	14	3		367	384	288	
Ohio	77	366	128	4 914	5 505	4 483	
Oklahoma	47	35	14	1 200	1 290	921	
Oregon	27	41	11	612	691	686	
Pennsylvania	117	808	80	8 023	9 037	6,880	
Rhode Island	14	61	14	1 062	1 141	888	
South Carolina	21	35	1	605	722	617	
South Dakota	25	1		290	322	270	
Tennessee	39	110	36	1 332	1 537	1 202	
Texas	116	103	12	3 292	3 573	2 379	
Utah	19	24		370	413	250	
Vermont	10	8		401	419	273	
Virginia	40	102	25	1 425	1 595	1 357	
Washington	43	64	15	2,264	2 326	1 711	
West Virginia	41	36	2	505	584	600	
Wisconsin	76	150	27	2 100	2,323	1 776	
Wyoming	15			126	141	128	
Totals	2 467	7 757	2 018	101 518	113 730	90 903	

* Duplicates eliminated

HOSPITALS INCREASING SIX TIMES AS FAST AS POPULATION

A complete census of hospitals is available only back as far as the 1909 edition of the American Medical Directory. Before 1909, no satisfactory figures are available with the exception of a fairly complete survey by the United States Department of Education in 1872 reported in the Proceedings of the American Medical Association for 1873. That report shows that all hospitals in the United States in 1872 must have had a total capacity of around 50,000 beds.

Using that number as a starting point for that year, and apportioning the increase that must have taken place in each decade to make the 421,065 beds that were found in 1909 and then adding each annual census available since 1909, gives the best available knowledge on the increase of hospital beds by decades since 1872

Sixfold Increase in Use of Hospitals in Sixty Years, Ratio of Beds to Population, 1872-1932

Year	Hospital Beds	Population	Ratio Beds to Population
1872	50,000 (1st)	40,577,841 (1st)	1 hospital bed to 817 people
1880	45,000 (1st)	50,151,753	1 hospital bed to 590 people
1890	150,000 (1st)	62,947,714	1 hospital bed to 410 people
1900	250,000 (1st)	75,004,575	1 hospital bed to 304 people
1910	441,148	91,912,266	1 hospital bed to 208 people
1920	669,639	105,710,620	1 hospital bed to 158 people
1930	953,869	122,775,046	1 hospital bed to 128 people
1931	974,115	124,481,488 (1st)	1 hospital bed to 128 people
1932	1,014,354	120,187,630 (1st)	1 hospital bed to 124 people

Such has been the demand for hospitalization that while in 1872 one bed furnished the hospitalization demanded by 817 persons, in 1932 hospitalization existed at the rate of one bed for each 124 persons. Should the present rate of increase in hospital beds continue so to outstrip the rate of increase in population, overhospitalization is inevitable. On the whole, the country is without doubt already overhospitalized, although this may not apply to every community and certainly does not apply equally to all communities.

Total Patient Days and Average Length of Stay in Hospitals According to Control

	1920	1931	1932	Percent age of Increase 1920 to 1932	Average Length of Stay, Days 1931	1932
Federal	16,802,045	10,301,505	21,164,160	25.9	64	64
State	132,675,330	144,162,970	152,289,680	14.0	370	327
County	10,342,510	22,044,630	25,947,485	34.1	60	61
City	15,400,600	17,101,710	21,017,430	35.6	25	27
City county	4,152,240	4,204,590	2,202,565	44.7*	39	21
Total govern- mental	188,663,025	207,704,865	222,711,320	18.0	113	108
Church	27,656,050	29,077,515	20,503,435	7.4*	13	13
Fraternal	1,321,875	1,304,300	1,372,690	2.1	31	32
Industrial	1,351,595	1,132,230	1,056,675	21.8*	12	13
Individual or partnership	7,520,460	6,537,880	5,052,785	20.8*	14	13
Independent asso- ciations	38,754,605	30,182,750	38,415,520	0.8*	14	14
Total nongov- ernmental	76,606,565	75,224,675	72,371,105	5.6*	14	14
Grand total, all hospitals	265,269,590	283,019,540	295,082,425	11.2	40	40

* Decrease

SCHOOLS OF NURSING

Among the 6,562 registered hospitals there are 1,934 schools of nursing, of which 1,656 have been reported as accredited by their respective state board of nurse examiners and 278 are reported as unaccredited. The total enrolment reported by all of the 1,934 schools of nursing is 86,649. In addition to these students in training, the whole hospital field makes use of 48,567 registered nurses on a full time basis for nursing only and 8,029 registered nurses for other duties. Information as to which schools of nursing are accredited was furnished as of January, 1933 by state boards of nurse examiners.

The number of schools of nursing has declined, but the number of students enrolled has increased, in recent years. In 1926 there were 2,155 schools with a total enrolment of 76,527 students. Even allowing for postgraduate students and affiliates in the enrolment reported in the present census, there still is an increase in number of students over 1926. The searching attention to the education of nurses and the consequent

realignment of ideals and standards, in recent years, are matters of common knowledge in the hospital field.

Among the 278 schools that are unaccredited by the state boards, there are a number of schools in the state institutions, particularly in Massachusetts, New York and Pennsylvania, which are giving courses that meet the requirements of the state departments under which those schools are operated, although they are not approved for the R.N. degree by the state board of nurse examiners.

The number of student nurses enrolled includes some postgraduate students, but the number of these was not ascertained. The number of student nurses enrolled also includes those enrolled in the 278 unaccredited schools. Figures here given regarding schools of nursing include schools that are affiliated with the accredited schools, they also include students in the affiliated schools.

Schools of Nursing

State	Total Hos- pitals	Number of Schools			Total Student Nurses Enrolled	R.N.s Employed for Nursing	R.N.s Otherwise Employed
		Accred- ited	Unac- credited	Total			
Alabama	92	34	8	42	874	410	30
Arizona	77	4	1	5	152	2.8	9
Arkansas	73	11	0	20	417	215	63
California	408	58	0	58	3,718	4,441	4,09
Colorado	108	20	2	22	1,106	690	88
Connecticut	89	23	6	29	1,795	1,186	132
Delaware	14	7	0	7	252	63	6
Dist. Columbia	34	12	0	12	1,136	567	57
Florida	91	15	4	19	575	362	62
Georgia	112	24	15	39	983	446	49
Idaho	55	10	0	10	228	126	10
Illinois	337	130	0	136	6,223	2,961	724
Indiana	142	20	2	31	1,711	656	153
Iowa	171	36	8	44	1,914	663	171
Kansas	130	42	4	46	1,247	537	102
Kentucky	109	26	0	26	833	422	68
Louisiana	64	16	1	17	979	329	28
Maine	73	20	3	32	863	295	87
Maryland	97	25	7	32	1,785	680	132
Massachusetts	201	01	24	114	6,163	2,728	443
Michigan	234	45	4	40	2,836	2,315	388
Minnesota	219	50	7	57	3,297	1,205	316
Mississippi	75	36	5	41	544	175	27
Missouri	149	40	4	44	2,204	1,169	237
Montana	63	13	3	16	487	264	50
Nebraska	105	18	0	18	900	424	91
Nevada	23	0	0	0	0	60	0
New Hampshire	45	22	0	22	618	209	40
New Jersey	175	54	5	59	3,381	1,611	303
New Mexico	40	2	0	2	50	208	12
New York	603	133	37	170	9,743	9,766	1,149
North Carolina	156	45	16	61	1,334	608	66
North Dakota	53	10	0	16	501	186	31
Ohio	265	78	12	90	4,897	2,232	410
Oklahoma	124	17	3	20	614	387	66
Oregon	81	12	0	12	673	468	224
Pennsylvania	378	134	45	179	9,391	3,301	837
Rhode Island	33	11	0	11	743	371	55
South Carolina	64	24	3	27	622	232	38
South Dakota	65	19	0	19	459	202	35
Tennessee	109	32	1	33	1,220	495	60
Texas	299	57	10	67	2,419	1,125	165
Utah	35	6	0	6	377	170	11
Vermont	33	12	0	12	378	115	37
Virginia	112	34	7	41	1,585	530	195
Washington	121	28	1	29	1,280	772	116
West Virginia	78	31	12	43	847	264	68
Wisconsin	229	35	9	44	2,022	1,420	197
Wyoming	30	4	1	5	133	160	19
Totals	6,562	1,656	278	1,934	86,640	48,567	8,029

PATHOLOGIC AND RADIOLOGIC SERVICES IN HOSPITALS

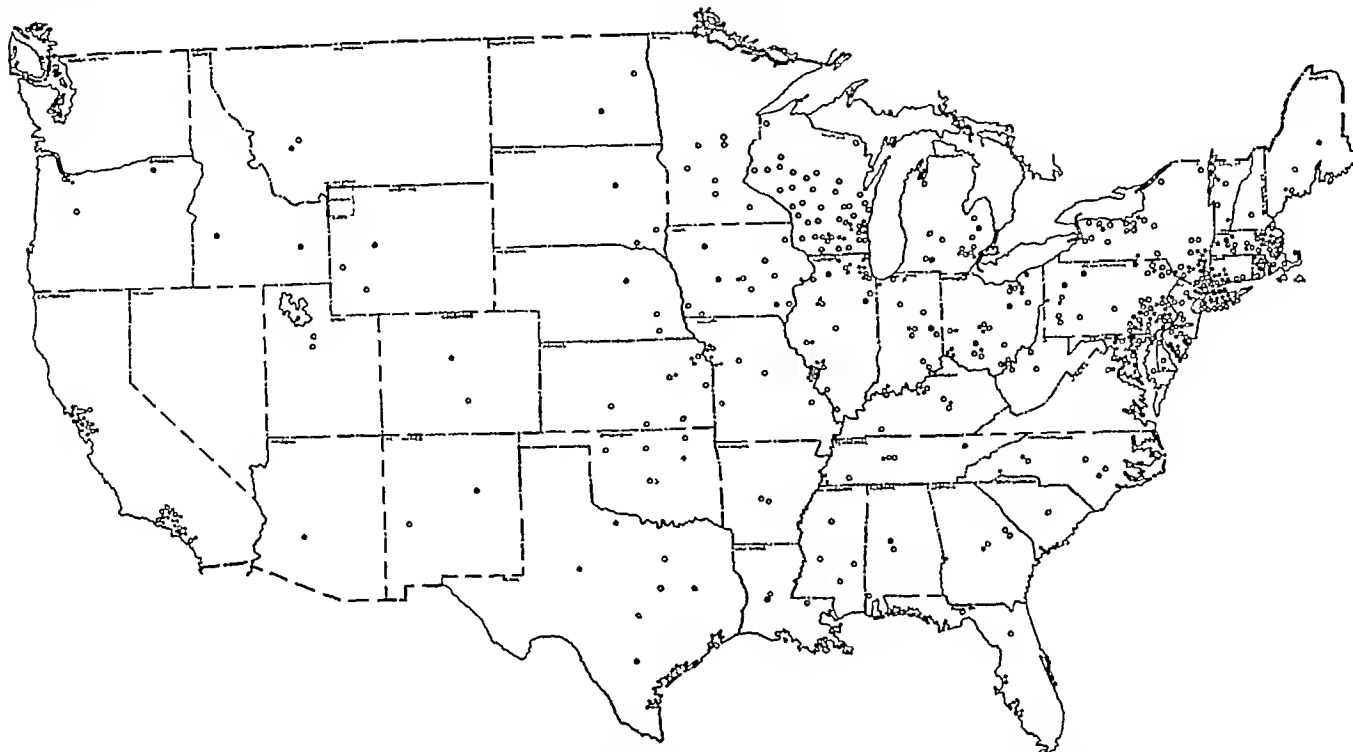
During the last ten years, the number of hospitals of all types having their own pathologic or clinical pathologic laboratory has increased from 3,035 to 4,202. The present census shows there are 1,313 hospitals that depend entirely on outside laboratories and 1,391 that use both their own and outside laboratories.

The number of x-ray departments in hospitals has increased during the past ten years from 2,841 to 4,599. Nine hundred and sixty-three hospitals have all their x-ray work done outside and 172 patronize outside radiologists in addition to radiologic services inside the hospital.

HOSPITALS FOR NERVOUS AND MENTAL PATIENTS

The largest number of special hospitals consists of those for nervous and mental patients. Six hundred and thirty-one institutions appear in the current register of hospitals and also in the separate list on page 901. Discrepancies which may appear between the figures

and patient population they represent nearly 50 per cent of the total. A proper interpretation of these figures must be based on an understanding of the kinds of institutions included in this group. Some are schools, others colonies. Of many others, large sections may be colonies or asylums not primarily concerned with hospital service but providing custodial care at a low rate for a term of years.



Map showing location of hospitals for nervous and mental patients in the United States. Government hospitals are marked by a circle and non-government hospitals by a star. (Map copyright by Rand McNally & Company.)

Capacity, Patient Population, Medical Staff and Other Personnel in Hospitals and Other Institutions for Mental Patients

	Number	Rated Capacity	Average Census	Admissions			Discharges				Medical Staff			Nurses		
				First	Readmissions	Transferred	Recovered	Improved	Unimproved	Others	Total	Deaths	Resident	Visiting	Registered	Student Attendants
Veterans Admin. Hospitals	20	14,489	12,370	3,927	777	1,583	416	1,418	945	1,757	4,536	400	237	100	636	0 2,161
Other federal institutions	4	4,472	5,309	920	87	0	159	161	113	25	48	48	32	6	23	19 791
State hospitals & asylums	174	276,436	293,324	66,490	14,008	7,131	11,011	17,247	5,715	12,303	46,862	25,781	1,313	747	1,873	2,333 23,581
State schools & colonies	65	65,689	65,944	9,741	523	1,182	76	1,774	965	1,220	4,035	1,564	156	127	120	52 4,683
State institutions for epileptics	11	10,105	10,060	1,601	359	87	0	301	249	32	591	587	48	36	38	63 769
State institutions for drug and alcoholics	1	122	85	149	0	0	0	0	0	33	33	1	2	0	2	0 21
County institutions	67	26,734	24,606	5,964	1,348	495	848	1,406	456	624	2,334	2,485	57	119	63	117 2,250
City institutions	9	9,143	12,265	4,571	494	153	184	2,092	1,244	678	4,193	1,450	52	94	155	59 682
Total governmental	351	407,160	429,963	93,363	15,556	10,667	12,703	24,395	9,687	16,702	63,547	32,361	1,937	1,229	2,005	2,073 85,238
Private endowed hospitals	12	2,352	2,183	2,063	861	80	347	1,108	635	453	2,543	212	108	57	408	357 569
Private sanatoriums	156	11,583	8,864	14,912	3,783	454	3,541	6,542	2,644	2,221	14,948	1,102	256	265	530	290 2,432
Private homes	76	2,511	1,759	1,645	237	149	609	632	141	215	1,507	149	20	112	123	3 260
Private schools & homes	27	3,311	2,884	291	34	9	7	70	41	47	165	70	10	50	29	5 267
Private institutions for epileptics	3	237	156	1	3	0	0	7	1	0	8	2	1	7	2	0 9
Private institutions for drug and alcoholics	6	159	45	956	297	0	955	17	0	1	956	3	5	3	9	0 9
Total nongovernmental	280	20,155	15,904	15,958	5,315	722	5,472	8,276	3,462	2,937	20,247	1,558	400	594	1,106	655 3,532
Grand total	631	427,315	445,867	112,321	23,571	11,389	18,175	32,771	13,149	19,639	83,794	33,919	2,337	1,723	4,011	3,328 88,770

shown in the list of mental hospitals and those found in the general register are due to the fact that these two lists were compiled at slightly different times.

It will be noted that the number of nervous and mental institutions is less than 10 per cent of the total number of registered hospitals, but that in capacity

These 631 hospitals and related institutions report a total rated capacity of 427,315 beds and an average census of 445,867, indicating a serious overloading. Total admissions were 147,621, total discharges, including deaths, 117,693, showing an increase in the patient population of approximately 30,000.

COUNTIES HAVING HOSPITALS

The figures given here refer to counties in which there is a registered hospital under whatever auspices. It does not refer solely to hospitals supported by taxation and run by county commissioners. In several issues of the Hospital Number there have been statistics and maps showing the number of counties

Counties Having Hospitals

State	Total Counties		Counties Having Hospitals		Per Cent of Counties Having Hospitals	
	1920	1932	1920	1932	1920	1932
Alabama	67	67	17	37	25.4	55.2
Arizona	14	14	12	14	85.7	100.0
Arkansas	75	75	18	1	24.0	46.6
California	58	58	46	55	79.3	94.8
Colorado	61	63	20	36	41.0	57.1
Connecticut	5	5	5	5	100.0	100.0
Delaware	1	1	1	1	100.0	100.0
District of Columbia	1	1	1	1	100.0	100.0
Florida	74	67	13	23	24.0	40.2
Georgia	152	161	28	51	18.4	31.7
Idaho	41	44	15	27	36.6	61.4
Illinois	102	102	61	73	59.8	71.5
Indiana	92	92	53	63	57.6	68.5
Iowa	99	99	50	78	50.6	78.8
Kansas	105	105	45	59	42.9	56.2
Kentucky	120	129	72	52	60.0	40.3
Louisiana	64	64	16	27	25.0	42.2
Maine	16	16	14	16	87.5	100.0
Maryland	24	23	17	17	70.8	73.9
Massachusetts	14	14	13	14	92.9	100.0
Michigan	83	83	48	66	57.8	79.5
Minnesota	80	87	61	75	76.2	86.2
Mississippi	82	82	22	41	26.8	50.0
Missouri	115	114	26	50	22.6	43.8
Montana	44	46	25	36	56.8	81.8
Nebraska	93	93	15	51	16.1	54.8
Nevada	16	17	13	14	81.3	82.4
New Hampshire	10	10	10	10	100.0	100.0
New Jersey	21	21	19	21	90.5	100.0
New Mexico	28	31	15	19	53.6	61.3
New York	61	62	53	59	86.9	95.2
North Carolina	100	100	49	55	49.0	55.0
North Dakota	53	53	24	30	45.3	56.6
Ohio	88	88	55	66	62.5	75.0
Oklahoma	77	77	27	50	35.0	64.9
Oregon	36	36	23	28	63.9	77.8
Pennsylvania	67	67	54	59	79.1	88.1
Rhode Island	5	5	3	5	60.0	100.0
South Carolina	45	46	18	28	40.0	60.9
South Dakota	69	69	21	30	30.4	43.5
Tennessee	96	95	22	42	22.9	44.2
Texas	251	254	64	127	25.5	50.0
Utah	29	29	9	15	31.0	51.7
Vermont	14	14	10	11	71.4	78.6
Virginia	100	100	29	49	29.0	49.0
Washington	39	39	24	29	61.5	74.4
West Virginia	55	55	27	33	49.1	60.0
Wisconsin	71	71	45	60	63.4	84.5
Wyoming	21	24	14	15	66.7	62.5
Totals	1,027	3,074	1,332	1,882	44.0	61.2

having hospitals located within their borders. It is not assumed that the county is the proper unit by which to measure hospitalization. The county, however, does come the nearest of any of our geographic subdivisions to representing the scope or extent of territory which can be served readily by a hospital in emergency as well as other cases.

It is obvious that many counties at present are not thickly enough populated to justify a hospital, and many are so located that already existing hospitals in adjoining counties meet the needs. In 1920 there were only 1,332 counties that had hospitals within their borders and there are now 1,882, a gain of 550 in the twelve years. In fact, 117 counties have had hospitals opened within them since 1928. A glance at the accompanying table headed "Counties Having Hospitals" shows what has been going on since 1920 and the amazing extent to which hospitals have been opened in counties not previously having them. This, without doubt, has had far reaching results in attracting and holding able physicians in those communities. Individual instances of this can be cited by the hundred. The census did

not bring forth any evidence that well prepared physicians avoid the small towns and rural communities and flock to the cities in any greater proportion than do those who are not so well prepared.

OUTPATIENT SERVICE

On the list of registered hospitals published in another part of this issue, hospitals reporting that they have an outpatient department are marked with a small circle. There are 2,269 hospitals, both general and special, reporting that they have an outpatient service. No definition or limitation was given as to what comprises an outpatient department.

It is found that, among those answering in the affirmative, there are 339 hospitals whose outpatient service amounted to less than 1,000 visits a year. This would leave 1,930 hospitals, or 29.4 per cent of all registered hospitals, that have an outpatient department of 1,000 visits or more a year. Nevertheless the total number of persons visiting the outpatient departments of hospitals during the year under survey corresponding mainly with the calendar year 1932 was 8,186,811, as compared with 6,750,388 five years ago.

Outpatient Service by States—Comparing 1927 and 1932

State	Number of Outpatient Departments		Number of Outpatients		Number of Visits by Outpatients	
	1927	1932	1927	1932	1927	1932
Alabama	34	27	83,397	55,160	95,301	227,502
Arizona	41	31	171,92	80,145	33,088	185,386
Arkansas	17	22	9,943	39,543	19,348	89,087
California	116	124	5,800	424,406	762,819	2,262,014
Colorado	20	28	30,808	47,148	56,408	172,360
Connecticut	29	32	60,109	32,126	82,093	148,665
Delaware	10	9	20,349	22,378	3,424	55,200
District of Columbia	20	16	46,957	112,456	139,469	275,698
Florida	28	32	23,458	39,063	60,824	149,010
Georgia	31	30	184,654	160,106	335,926	423,168
Idaho	13	14	2,555	0,486	6,205	19,769
Illinois	97	118	357,944	305,517	471,363	1,157,172
Indiana	35	30	51,301	118,240	87,660	242,241
Iowa	35	40	44,551	51,062	52,570	110,595
Kansas	39	39	87,787	95,127	24,845	422,029
Kentucky	43	39	61,896	71,304	23,821	239,377
Louisiana	20	22	318,490	123,200	220,891	520,441
Maine	10	29	23,420	21,761	42,637	118,813
Maryland	43	37	111,089	193,570	479,591	697,349
Massachusetts	113	128	271,950	453,697	1,909,847	1,718,017
Michigan	73	96	275,431	323,811	719,608	2,401,373
Minnesota	49	51	145,376	151,747	223,491	415,502
Mississippi	20	28	34,048	29,451	27,593	83,093
Missouri	43	46	122,718	313,795	378,560	871,063
Montana	19	29	85,919	44,194	31,778	89,865
Nebraska	24	11	25,766	20,870	62,526	67,482
Nevada	7	7	9,994	4,089	14,833	25,924
New Hampshire	18	22	5,841	19,748	23,507	31,425
New Jersey	89	99	250,219	464,941	408,258	1,966,612
New Mexico	21	17	31,342	51,019	25,780	89,713
New York	219	248	1,528,776	2,012,296	3,907,752	7,018,133
North Carolina	65	73	62,922	112,661	82,282	241,231
North Dakota	8	7	8,117	7,270	965	28,919
Ohio	84	84	119,097	204,928	708,793	919,162
Oklahoma	34	38	73,011	69,951	106,007	185,191
Oregon	15	29	22,572	17,001	5,335	159,384
Pennsylvania	109	191	721,649	876,522	2,163,024	3,106,037
Rhode Island	15	15	49,785	112,982	124,489	240,033
South Carolina	18	27	30,560	75,718	63,579	151,009
South Dakota	18	16	22,104	19,149	50,599	81,488
Tennessee	27	31	81,343	109,572	153,281	409,832
Texas	73	79	196,315	294,397	179,867	723,817
Utah	8	9	32,221	47,693	19,145	6,799
Vermont	19	11	4,273	8,517	3,461	19,284
Virginia	49	42	94,089	78,590	129,666	270,149
Washington	41	35	97,953	60,257	51,680	190,312
West Virginia	28	33	40,660	53,544	42,717	117,452
Wisconsin	42	45	64,893	88,313	54,543	337,351
Wyoming	11	8	17,727	13,004	3,216	34,116
Totals	2,130	2,299	6,750,388	8,186,811	13,804,566	28,958,213

It is worthy of special note that during the same five year period the number of visits annually to the outpatient departments of hospitals increased from 13,804,566 to the enormous total of 28,958,213. The special significance of this figure in addition to its size is the fact that the outpatients made an average of more

than three visits each, whereas in 1927 they made an average of barely two visits each

The total number of visits were more than doubled during the last five years in thirty-three states. In four of these states, the number of visits increased over fourfold and in five states it increased tenfold or more in the same period. It is well known that attendance on the outpatient departments of hospitals always fluctuates with the business conditions throughout the country. Along with the increase of the amount of work done in outpatient departments there is evidence also of an increased use of that department for educational purposes, especially the training of interns and residents. It is there that the intern sees the kinds of patients and deals with those conditions which will come to him in his medical practice. The urgent importance of using the outpatient department to the utmost, for the instruction of interns, therefore, is obvious.

SIZE OF HOSPITALS

There has been a certain tendency to build somewhat larger hospitals, particularly for the care of mental patients, by states and for the care of indigents in large

Size of Hospitals (Based on 1931 Census)

Hospitals of What Size	Comprise What per Cent of All Hospitals	Admit What per Cent of All Patients	Have What per Cent of All Beds
Over 300 beds	8.20	23.63	59.58
From 201 to 300 beds	5.34	10.12	8.00
From 101 to 200 beds	12.73	24.40	12.46
100 beds and under	73.73	33.85	19.00

cities. On the other hand, there has been noted a decided tendency in the opposite direction—the building of many small hospitals in rural sections and towns to supply the demand for adequate hospitalization to each community. The resultant of these general tendencies has been a slight gradual increase in the average size of hospitals.

All hospitals of more than 300 beds capacity comprise 8.2 per cent of the entire number of hospitals and have 59.58 per cent of all beds and admit 23.63 per cent of all patients.

For the small hospitals, it is found that those of 100 beds and under comprise 73.73 per cent of the entire number of hospitals, have 19 per cent of all the beds, and admit 35.85 per cent of all patients.

HOSPITALS IN THE UNITED STATES POSSESSIONS

Statistics on the hospitals in the United States possessions show little change in the number of hospi-

Hospitals in United States Possessions

	Hospitals	Patients Admitted	Beds	Basal nets	Average Patients	Births
Alaska	10	2,917	388	50	170	195
Canal Zone	10	21,741	2,117	38	1,478	912
Hawaii	43	39,178	4,666	172	3,062	1,610
Philippine Islands	92	42,985	8,425	352	3,915	5,665
Porto Rico	39	11,411	2,605	100	1,885	514
Virgin Islands	2	813	114	12	55	87
Totals (1927)	204	119,523	18,255	729	12,872	8,416
(1931)	202	104,541	17,401	651	12,435	7,345

tals over last year but indicate increased capacity and increased patient population. The hospitals of Canal Zone admitted 21,741 patients as against 16,605 last year. The hospitals of Hawaii increased from 42 to 45

and admitted 39,178, as against 24,693 last year. The number of births recorded there was 1,610, as compared with 1,090 last year. The Philippine Islands and Porto Rico each show slight increases in the number of patients admitted and the number of births.

METHODS OF REGISTERING AND APPROVING HOSPITALS

The inclusion of any hospital in the Register is an indication that evidence concerning irregular or unsafe practices in that hospital has not been available to the

Hospitals, Sanatoriums and Related Institutions

	Hospitals	Beds	Basal nets	Patients Admitted	Average Census	Births
Hospitals and sanatoriums	5,065	840,704	49,816	6,875,095	664,810	699,777
Related institutions	1,407	173,050	2,416	353,056	143,635	11,107
Total registered hospitals	6,562	1,014,354	52,232	7,228,151	808,445	710,884

Council On Medical Education and Hospitals. Considerable investigation is carried out in the case of each hospital before it is admitted to the Register.

First, hospitals supply information regarding their capacity, equipment, classification and list of staff. Each member of the staff is then looked up in the biographic files of the Association. Information and advice are obtained from the secretaries and other members of the county medical societies, from state, city or county health departments, from the councilors of the state medical associations for the district in which the hospital is located, and from other sources. Investigation of hospitals for internship and residency approval is more thorough and comprehensive than for registration alone.

A personal visit by a member of our staff of hospital examiners is made to each hospital approved, or applying for approval, for internships or for residencies. An increasing number of other hospitals are being inspected.

HOSPITALS REFUSED REGISTRATION

There are 527 institutions which, because of alleged unethical or questionable practices, admission to their staffs of members who are seriously unqualified, either

Hospitals Not Registered by the American Medical Association

Alabama	4	Maine	6	Oklahoma	18
Arizona	2	Maryland	4	Oregon	7
Arkansas	7	Massachusetts	12	Pennsylvania	21
California	77	Michigan	17	Rhode Island	1
Colorado	16	Minnesota	8	South Carolina	1
Connecticut		Mississippi	2	South Dakota	3
Delaware		Missouri	30	Tennessee	9
Dist. Columbia		Montana	5	Texas	22
Florida	11	Nebraska	25	Utah	
Georgia	1	Nevada	1	Vermont	
Idaho	5	New Hampshire	1	Virginia	
Illinois	36	New Jersey	4	Washington	17
Indiana	20	New Mexico	1	West Virginia	2
Iowa	16	New York	30	Wisconsin	9
Kansas	2	North Carolina	7	Wyoming	2
Kentucky	8	North Dakota	5		
Louisiana	1	Ohio	27	Totals	527

morally or professionally, flagrant methods of advertising or for other valid reasons are deemed unworthy of being included in any published list of reputable hospitals. The 527 unregistered institutions have only 15,791 beds or a little over 1 per cent of all hospital beds. The distinction of having the largest number of unregistered hospitals belongs to California, where there are 77 such institutions.

DEVELOPMENTS IN EDUCATIONAL ACTIVITIES OF HOSPITALS

As in almost all other phases of institutional activity, evidence is presenting itself that the educational functions of hospitals require some readjustment. Little concern need be felt that interns and residents will ever be less essential to hospitals. The house staff system, representing as it does a remarkably effective organization at very reasonable terms and, above all, quite genuinely satisfactory to every one concerned, will not be gravely affected by altered financial circumstances.

Nevertheless, changing trends are manifest. The economic situation is one factor. Likewise, and somewhat as a corollary, opinions of medical educators on hospital training (in fact, on medical education as a whole) have undergone revision.

ECONOMIC FACTORS

Hospitals in the last two years have witnessed a decided change in the attitude of members of the house staff. Since private practice, under existing circumstances, is relatively unattractive to these younger men, owing to uncertain financial returns and to strong established competition, longer periods of internship and residencies make a more favorable appeal. Despite precarious circumstances even for well established institutions, the hospital stands as a haven of security from which recent graduates increasingly hesitate to separate themselves.

The effect of this process has been to decrease the gap that has recently existed between the number of internships offered and the number of candidates presenting themselves. For the first time in a number of years, not too many house positions are available.

The hospital, in the past, has competed strongly for desirable interns. In fact, this competition has been the principal incentive for observing and maintaining adequate standards of training. With lessening competition for interns, it is reasonable to suppose that a lowering of standards would occur were it not for the supervision exercised by the Council.

Such an eventuality seems unlikely. Efforts that have been expended in attracting interns represent an investment not lightly to be relinquished. Furthermore, the habit of thinking along educational lines has been beneficial. The presence of interns is not only helpful but stimulating.

The trends apparent at the present time are increased duration of service for many interns, a consequent reduction of the number of available openings, a modest drop in salary scales, and a tendency, because of the desirability of house positions, to approach more closely to what has been characterized as "practical discipline." It has occurred to not a few educators that some danger lies in extensive periods of hospital service, that a tendency to overdependence on hospital facilities is induced and that such practitioners are hampered in handling even ordinary illnesses such as are commonly encountered in general practice.

CHANGES IN POINT OF VIEW OF MEDICAL EDUCATORS

Just such considerations are presented in the recently published Report of the Commission on Medical Education, which contains a chapter on the internship. Elsewhere in that report, evidence is adduced indicating the necessity for reevaluating the demands made on

practitioners and altering medical education (including the internship) to meet these demands. The average intern spends too much time in acquiring a superficial acquaintance with technical surgical procedures, a process that often prompts him in his early professional career to attempt operations which he is not qualified to do. Other refinements in special practice take up time that could more profitably be spent in mastering the diseases which he will encounter during his first years of practice. His training should rather equip him to care with greater adequacy for such conditions as minor surgery and fractures, general medical diseases, pediatrics and infant feeding, and obstetrics.

The internship, then, in the opinion of these educators, needs realignment on the basis of these more practical concepts. The importance of experience in the outpatient department is emphasized as reproducing more closely the conditions of actual practice. Likewise, community medical needs should be taught the young physician, to prepare him for accepting a leading rôle in the development of preventive medicine and public health.

A swelling tide of criticism has been directed against short surgical services consisting mainly of experience in the operating room, represented by the one year

Allowances for Interns in Approved Hospitals, 1923-1932

	Number of Hospitals				Number of Interns			
	1923	1927	1930	1932	1923	1927	1930	1932
Instruction and experience only	195	184	159	180	1,660	2,541	2,842	2,003
Monthly allowance up to \$25	151	201	228	235	607	1,446	1,633	1,973
\$25 and over	113	159	192	184	394	773	864	866
Bonus	5	24	67	61	24	150	5,0	427
Other arrangements	46	10	18	16	134	42	105	92
Totals	510	578	664	696	3,110	4,062	6,124	6,261

"straight" surgical services, and in a more aggravated form in many of the "rotating" services, where the intern is assigned to surgery for a period of three or four months. The *theory* of the rotating internship is that it provides an all round training for general practice. In *practice*, too often it inspires the intern with an entirely unwarranted self-confidence and sends him out into the world a surgeon whose skill is acquired, if ever, at great cost to the public. Preparation for general practice can never be too thorough or too complete. By all means it should include surgical diagnosis, the handling of emergencies, minor surgery, and fractures. But in many of the smaller hospitals, existing on the income from private patients, these phases of surgery are reduced to a minimum, while the bulk of the work consists of major elective operations. It may be, then, that surgery will come to be regarded as a specialty and that operating room experience will be confined, as far as may be practicable, to residencies of not less than two years' duration.

In the arrangement of services, greater flexibility is desirable in anticipation of the various phases of medical practice. The requirements of men who will enter specialties must be provided for as well as the needs of those who contemplate general practice. The problems of communities in which one is to practice must be considered and the requisite training in various departments of medicine should be provided for during the internship.

Reference to the table, which presents the latest available figures, will furnish indisputable proof that compensation in itself is still an unimportant consideration in the choice of internships. It will be noticed that although a greater number of hospitals must pay their interns in order to attract applicants, even so, fewer interns are paid. An increasing number of approved hospitals using more interns per hospital usually offers such valuable teaching opportunities as to make the receipt of a cash allowance a minor consideration.

All these changes point to a more complete reliance on the staff as a definite guiding force than heretofore. The increasing duties of the intern committee and introduction of new staff activities described from time to time in *THE JOURNAL* will, of necessity, induce greater rather than less supervision of all house staffs.

No implication of lower standards arises—rather a maintenance of present educational levels with movements away from overstandardization and toward more flexibility. Such a redefinition of motives is contemplated for internships. A start in this direction has already been made for residencies.

THE REVISED REQUIREMENTS FOR RESIDENCY HOSPITALS

The recent intensification of interest in the certification of specialists has led the Council to inaugurate several new principles in its approval of residencies. It does not consider a hospital residency as sufficient in itself to qualify a physician as a specialist. As an introduction, however, to well established postgraduate courses a residency is deserving of credit. Many hospitals, both general and special, have splendid facilities for this type of training.

All are familiar with the biographic cards maintained for each physician in the United States at the office of the American Medical Association. From this source, the American Medical Directory draws its principal information. During the past year on receipt of information from all hospitals in the country, credit for residencies on an educational basis has been incorporated in these biographic records.

All approved residencies are given full credit without further investigation. In general hospitals not approved for residencies, additional years of service are classed as additional internships, or if in special hospitals as periods of institutional experience of greater or shorter length.

Elsewhere in this issue will be found the recently revised "Essentials in a Hospital Approved for Resi-

dencies in Specialties." A careful reading will elicit the intention of elevating the term "residency," of restricting its use to services of definitely educational value, and of regarding the residency as one of the preliminaries to special practice.

If active staff cooperation is essential during the internship, it is equally so during the residency. Responsibility for residency training, however, has been placed in the hands of individuals or small committees for more effective control. No residency will be approved which does not provide for supervision by responsible proficient practitioners of the specialty.

The duties and privileges of residents have also been outlined. Likewise the importance of the laboratories and their directors, of the library, and of the records has been stressed. Necropsies, still a useful index of the scientific mindedness of hospital staffs are urged, and with increasing stress on the care with which they are performed.

Discriminating judgment must be exercised in those hospitals using both interns and residents that proper balance be preserved—that one group be not favored at the expense of the other. It is generally conceded that residencies make for better internships, for not only is there better supervision but the prospect of attaining the position of resident stimulates greater effort among the interns. Some educators believe that ultimately internship and residency hospitals will be completely separated. No such action need be envisaged if the staff recognizes the aims and requirements of both groups.

The attention of special hospitals (particularly tuberculosis and psychiatric) is called to the proviso which states that the first three years of residence in such institutions will be considered as educational and approval can be obtained on that basis. Other requirements, as stated in the Essentials, of course, must be met. This treatment is necessary in order to differentiate clearly between those individuals still in training and those who have attained reasonable proficiency in the specialty such as three years of residence implies. Subsequent years of service are classed as institutional experience only.

These considerations reemphasize the fact that internships and residencies are not static, that, though their value has been incontrovertibly established, they are still amenable to improvement. House appointments of the future show promise of being more efficiently conducted, more definitely aligned with the practical needs of physicians.

ESSENTIALS IN A HOSPITAL APPROVED FOR RESIDENCIES IN SPECIALTIES

Prepared by the Council on Medical Education and Hospitals of the American Medical Association

The training of residents in special branches of medicine or surgery represents advanced or postgraduate instruction for physicians whose ultimate aim is to prepare for the practice of a specialty. These residencies, therefore may be regarded as recognized work toward specialization but not as sufficient preparation in themselves to qualify a physician as a specialist. For rating as a specialist, a physician should continue his studies in a recognized postgraduate school or department of a medical college. A list of qualified postgraduate institutions in the United States and elsewhere is available on request.

The term *residency* shall be restricted to definite periods of not less than twelve months training, subsequent to internship.

I Applicants for Residencies

Candidates for residencies should be selected from graduates of approved medical schools, who have served an internship in an approved hospital or who have had two or more years in practice.

II Credit for Residency Training

As the postgraduate work of each physician is recorded in the biographic files maintained by the American Medical Association it is incumbent that all hospitals approved for residencies in specialties make annual reports to this office.

Periods of service in hospitals approved by the Council for residencies in specialties are given full credit without further inquiry. Periods of service in unapproved hospitals are recorded as additional internships in general hospitals and as institutional experience in special hospitals.

Clinical Fellowships are distinguished from residencies as being extended periods of graduate study, under university control, which are provided for by endowment or other financial arrangement. They usually, though not always, involve the performance of original investigative work and frequently the fulfilment of definite requirements for advanced degrees.

Residencies are offered by hospitals in medicine, surgery and their subdivisions.

III Eligibility

REGISTRATION—Previous admission to the Hospital Register of the American Medical Association is essential.

SIZE—The size of the hospital is not a primary consideration. The clinical material, however, should be sufficient to enable the resident to observe the principal manifestations of the disease, or diseases, he is studying.

PLANT AND EQUIPMENT—The hospital buildings should be such as to assure the safety and comfort of the patients. There should be such equipment, appliances and apparatus as are commonly employed in the specialty in which training is offered and in the use of which the resident should become proficient.

IV Staff

There must be an organized staff of ethical, licensed physicians holding the degree of doctor of medicine from acceptable medical schools. The particular specialties in which residents are being trained must be represented on the staff by well qualified, experienced and proficient physicians.

In general hospitals, the staff shall further provide a definite departmental organization in those branches of medicine in which residencies are offered. The chief of service in the department, either alone or as chairman of a residency committee in that department, shall assume direct responsibility for the training of the resident. He shall examine the qualifications of the candidates and form accurate conclusions as to the necessity for further training in the fundamentals. He shall supervise such research efforts as the residents conduct. He shall stimulate others of his staff to give instruction and sympathetic cooperation which graduate students require during their hospital service.

It is expected that there shall be at least monthly clinical-pathologic conferences or other regular staff meetings at which histories and clinical observations in selected cases may be reviewed, particularly when the death of patients has necessitated special study including necropsy performance. In addition to meetings of the staff as a whole, it is desirable that departmental conferences be conducted in which the resident may take an active or even the principal part to the end that the character of the service given by that department to its patients may be recurrently evaluated.

V Laboratories

PATHOLOGIC SERVICE—There must be a clinical laboratory equipped to perform routine and special tests in charge of a qualified pathologist. He shall be prepared to cooperate fully in the training of the residents and to supervise any direct contact which the resident has with the laboratory.

Residents in pathology must serve under a pathologist who is at least eligible for the Council's approved list of specialists in pathology. In addition, the department should provide apparatus, reagents or materials necessary to the operation of a modern pathologic laboratory.

RADIOLOGIC SERVICE—The roentgen-ray laboratory shall be under the direction of a qualified roentgenologist, proficient in the mechanical and interpretative functions of his specialty. He must likewise cooperate in all matters pertaining to the residencies which fall within the purview of his department. The department should contain roentgenologic, roentgenoscopic and, where required, therapeutic equipment.

Residents in roentgenology or radiology should serve under a specialist who at least is eligible for inclusion in the list of qualified roentgenologists as prepared by the Council. The laboratory should contain complete diagnostic and therapeutic equipment.

VI Necropsies

Thoroughness in postmortem performance should be emphasized. All hospitals desiring approval for the training of residents must examine post mortem 15 per cent or more of their fatal cases. The necropsy records should be complete, should be kept on file, and should include a summary of the clinical record.

Necropsies should be witnessed as often as possible by the resident. He may, with value, participate in their performance, in the writing of the protocols, and in preparing the final record in which appears a detailed description of both the gross and the microscopic observations.

VII Medical Library

The hospital shall maintain, or provide ready access to, an adequate medical library.

VIII Histories and Records

There must be complete histories, giving the patient's complaint, physical examination at time of admission to the hospital, preliminary diagnosis, laboratory observations, descriptions of operation, if any, daily record of case, final diagnosis, condition and date when discharged from hospital, end-results, and, in case of death, necropsy observations, if necropsy is performed.

The histories should show by signatures, or initials, all persons writing them or parts of them as well as the staff members by whom the histories are verified. Likewise, all orders and progress notes should be initialed or signed.

The records should be in charge of some competent person, preferably a trained record librarian. Alphabetical and diagnostic indexes of the patients should be maintained and the records filed so as to be readily accessible from either index.

IX Work of the Resident

The resident's term of service should cover at least twelve months.

Aside from daily contact with patients and staff men, the assumption of responsibility is the most valuable aspect of a residency. As ability is demonstrated, an increasing amount of reliance should be placed in the judgment of a resident both in diagnosis and in treatment. The essential strict supervision, however, should never be relaxed.

The resident should be encouraged to contribute to the effectiveness of hospital service by some investigative work. This may take the form of research in the hospital laboratories or wards, summaries of literature, or the preparation of statistical summaries and analyses derived from the hospital record department.

X Resident-Intern Relationship

Those hospitals training both residents and interns should recognize their responsibility to both groups and not curtail too sharply the opportunities ordinarily given to interns by an excess of solicitude for the residents. The residents may, with profit, teach the interns, supervise their record work, and direct the treatments which interns administer. They should not, however, act so as to diminish the contact of the interns with the attending men nor assume the supervisory or disciplinary functions of the staff intern committee.

XI Residencies in Special Hospitals

For educational purposes the Council will recognize not more than the first three years of service in a special hospital, notably those for psychiatric and tuberculous patients.

XII Admission to the Approved List

Approval is granted hospitals only by application, and subsequent to investigation by the Council staff. Withdrawal of approval occurs when serious lack of conformity to the Essentials is revealed or if vacancies continue longer than two years.

Hospitals that wish to be approved for the training of residents should apply to the Council on Medical Education and Hospitals of the American Medical Association, 535 North Dearborn Street, Chicago.

List of Hospitals and Other Institutions Caring for Patients with Nervous or Mental Diseases The Complete List of Registered Hospitals will be Found on Pages 911 to 972

Marginal No	Location	Admission	Returned	Fettablished	Rated	Capacity	Average	Patients	Resident	Medical	Nurses	Admissions				Discharges				Deaths	Marginal No
												First	Readmissions	Transfers	Recovered	Improved	Unimproved	Other			
Veterans Administration Hospitals for Mentally Ill																					
1	North Little Rock Ark	Yes	Yes	1891	750	750	752	10	0	0	0	108	58	22	7	140	60	12	12	1	
2	Palo Alto Calif	Yes	Yes	1910	1,010	1,010	601	27	0	0	0	108	58	22	7	140	60	12	12	1	
3	Auburn Ga	Yes	Yes	1820	1,017	1,017	820	11	0	0	0	108	58	22	7	140	60	12	12	1	
4	North Chicago Ill	Yes	Yes	1820	1,130	1,130	820	11	0	0	0	108	58	22	7	140	60	12	12	1	
5	Marion Ind	Yes	Yes	1821	1,400	1,400	1,306	20	0	0	0	108	58	22	7	140	60	12	12	1	
6	Knoxville Ia	Yes	Yes	1824	1,017	1,017	703	12	0	0	0	108	58	22	7	140	60	12	12	1	
7	Perry Point Md	Yes	Yes	1824	1,017	1,017	703	12	0	0	0	108	58	22	7	140	60	12	12	1	
8	Bedford Mass	Yes	Yes	1824	1,017	1,017	703	12	0	0	0	108	58	22	7	140	60	12	12	1	
9	Northampton Mass	Yes	Yes	1824	1,017	1,017	703	12	0	0	0	108	58	22	7	140	60	12	12	1	
10	Camp Custer Mich	Yes	Yes	1824	1,017	1,017	703	12	0	0	0	108	58	22	7	140	60	12	12	1	
11	St Cloud Minn	Yes	Yes	1824	1,017	1,017	703	12	0	0	0	108	58	22	7	140	60	12	12	1	
12	Guilford Miss	Yes	Yes	1824	1,017	1,017	703	12	0	0	0	108	58	22	7	140	60	12	12	1	
13	Lyons N Y	Yes	Yes	1824	1,017	1,017	703	12	0	0	0	108	58	22	7	140	60	12	12	1	
14	Northport N Y	Yes	Yes	1824	1,017	1,017	703	12	0	0	0	108	58	22	7	140	60	12	12	1	
15	Chillicothe O	Yes	Yes	1824	1,017	1,017	703	12	0	0	0	108	58	22	7	140	60	12	12	1	
16	Conventville Pa	Yes	Yes	1824	1,017	1,017	703	12	0	0	0	108	58	22	7	140	60	12	12	1	
17	Philadelphia Pa	Yes	Yes	1824	1,017	1,017	703	12	0	0	0	108	58	22	7	140	60	12	12	1	
18	Waco Tex	Yes	Yes	1824	1,017	1,017	703	12	0	0	0	108	58	22	7	140	60	12	12	1	
19	American Lake Wash	Yes	Yes	1824	1,017	1,017	703	12	0	0	0	108	58	22	7	140	60	12	12	1	
20	Sheridan Wyo	Yes	Yes	1824	1,017	1,017	703	12	0	0	0	108	58	22	7	140	60	12	12	1	
Totals							14,480	12,470	237	100	635	0	2,101	3,927	777	1,580	410	1,418	946	1,767	400
Other Federal Institutions																					
1	Washington D C	Yes	Yes	1832	7,000	7,000	4,601	27	0	0	0	27	8	0	122	160	113	17	211	1	
2	Portland Ore	Yes	Yes	1894	280	280	280	2	0	0	0	10	10	0	0	0	0	0	0	21	2
3	Quinton S D	Yes	Yes	1838	28	28	28	2	0	0	0	10	10	0	0	0	0	0	0	21	3
4	Washington D C (P O Laurel Md)	Yes	No	1833	400	400	338	2	0	0	0	2	2	0	0	1	0	0	0	6	4
Totals							4,472	5,300	32	0	0	701	87	0	159	101	113	25	258	0	258
State Hospitals for Mentally Ill																					
1	Tuolumaca Ala	Yes	No	1890	2,000	2,000	2,652	8	0	0	0	177	690	282	15	396	288	0	159	1	
2	St Vernon Ala	Yes	Yes	1901	1,200	1,200	1,200	3	0	0	0	120	378	47	0	76	26	10	181	2	
3	Arizona State Hospital	Yes	Yes	1894	600	600	778	7	0	0	0	65	210	22	0	14	17	34	181	3	
4	Little Rock Ark	Yes	Yes	1882	1,000	1,000	3,149	7	0	0	0	146	1,665	165	21	27	1	14	510	4	
5	Agnew Calif	Yes	Yes	1874	1,600	1,600	2,692	6	0	0	0	212	550	201	0	134	12	80	212	5	
6	Alhambra Calif	Yes	Yes	1893	1,600	1,600	1,910	6	0	0	0	183	440	120	173	121	95	138	80	6	
7	Imola Calif	Yes	No	1875	2,400	2,400	3,024	10	0	0	0	282	645	137	6	100	115	70	274	7	
8	Norwalk Calif	Yes	Yes	1893	1,718	1,718	2,013	8	0	0	0	210	440	144	3	189	139	17	241	8	
9	Patterson Calif	Yes	Yes	1893	2,550	2,550	3,264	11	0	0	0	276	787	203	32	164	285	47	103	9	
10	Stockton Calif	Yes	No	1851	3,338	3,338	3,405	0	0	0	0	258	787	203	32	164	285	47	103	10	
11	Denver Colo	Yes	Yes	1894	78	78	2,010	0	0	0	0	181	445	26	0	40	98	372	56	11	
12	Colorado State Hospital	Yes	Yes	1879	2,347	2,347	2,970	14	0	0	0	243	407	288	6	172	172	48	204	12	
13	Middletown Conn	Yes	Yes	1896	2,347	2,347	2,970	14	0	0	0	243	407	288	6	172	172	48	204	13	
14	Norwich Conn	Yes	Yes	1903	2,347	2,347	2,970	14	0	0	0	243	407	288	6	172	172	48	204	14	
15	Farmhurst Del	Yes	Yes	1889	2,000	2,000	2,100	6	0	0	0	70	305	131	0	48	30	3	227	15	
16	Charlottesville Fla	Yes	Yes	1890	2,000	2,000	2,100	6	0	0	0	70	305	131	0	48	30	3	227	16	
17	Alfredville Ga	Yes	Yes	1842	1,017	1,017	1,117	17	0	0	0	57	601	241	0	143	307	54	461	17	
18	Alton Ill	Yes	Yes	1871	1,017	1,017	1,117	17	0	0	0	57	601	241	0	143	307	54	461	18	
19	Alton Ill	Yes	Yes	1871	1,017	1,017	1,117	17	0	0	0	57	601	241	0	143	307	54	461	19	
20	Chicago State Hospital	Yes	Yes	1868	1,866	1,866	3,400	14	0	0	0	131	229	88	1	70	34	28	108	20	
21	East Moline State Hospital	Yes	Yes	1886	1,866	1,866	3,400	14	0	0	0	131	229	88	1	70	34	28	108	21	
22	Elgin State Hospital	Yes	Yes	1886	1,866	1,866	3,400	14	0	0	0	131	229	88	1	70	34	28	108	22	
23	Lockport State Hospital	Yes	Yes	1872	1,777	1,777	1,777	10	0	0	0	211	380	137	2	65	62	15	14	23	24
24	Kankakee State Hospital	Yes	Yes	1847	1,777	1,777	1,777	10	0	0	0	211	380	137	2	65	62	15	14	24	25
25	Rockford State Hospital	Yes	Yes	1878	1,777	1,777	1,777	10	0	0	0	211	380	137	2	65	62	15	14	25	26
26	Peoria State Hospital	Yes	Yes	1878	1,777	1,777	1,777	10	0	0	0	211	380	137	2	65	62	15	14	26	27
27	Central State Hospital	Yes	Yes	1880	1,777	1,777	1,777	10	0	0	0	211	380	137	2	65	62	15	14	27	28
28	Indianapolis Ind	Yes	Yes	1880	1,777	1,777	1,777	10	0	0	0	211	380	137	2	65	62	15	14	28	29
29	Evansville State Hospital	Yes	Yes	1880	1,777	1,777	1,777	10	0	0	0	211	380	137	2	65	62	15	14	29	30
30	Logansport Ind	Yes	Yes	1880	1,777	1,777	1,777	10	0	0	0	211	380	137	2	65	62	15	14	30	31
31	North Madison Ind	Yes	Yes	1880	1,777	1,777	1,777	10	0	0	0	211	380	137	2	65	62	15	14	31	32
32	Richmond Ind	Yes	Yes	1880	1,777	1,777	1,777	10	0	0	0	211	380	137	2	65	62	15	14	32	33
33	Cherokee Ia	Yes	Yes	1880	1,777	1,777	1,777	10	0	0	0	211	380	137	2	65	62	15	14	33	34
34	Charlottesville Ind	Yes	Yes	1880	1,777	1,777	1,777	10	0	0	0	211	380	137	2	65	62	15	14	34	35
35	Independence State Hospital	Yes	Yes	1880	1,777	1,777	1,777	10	0	0	0	211	380	137	2	65	62	15	14	35	36

List of Hospitals and Other Institutions Caring for Patients with Nervous or Mental Diseases—Continued

Marginal No	Institution	Location	Visited	Questionnaire Returned	Established	Rated Capacity	Average Patients	Medical Staff		Nurses		Attendants	Admissions		Discharges				Deaths	Marginal No
								Resident	Visiting	Registered	Student		First	Others	Recovered	Unimproved	Other			
35	Iowa State Psychopathic Hospital	Iowa City, Ia	Yes	Yes	1919	60	44	6		8	10	12	226	12	14	75	59	90	3	35
36	Mount Pleasant State Hospital	Mount Pleasant, Ia	Yes	Yes	1850	1,500	1,484	5	0	0	11	63	433	71	57	6	76	53	136	36
37	Larned State Hospital	Larned, Kan	Yes	Yes	1914	842	721	3	0	1	0	40	267	30	37	14	1	2	59	37
38	Oswatomie State Hospital	Oswatomie, Kan	Yes	Yes	1868	1,600	1,476	6	3	5	31	107	703	63	50	63	1	11	159	78
39	Topeka State Hospital	Topeka, Kan	Yes	Yes	1870	1,726	1,726	6	0		0	108	797	0	84	32	14	4	177	39
40	Central Louisiana State Hospital	Pineville, La	Yes	Yes	1906	1,500	1,451	6	0	4	0	115	476	84	62	97	40	3	146	40
41	East Louisiana State Hospital	Jackson, La	Yes	Yes	1847	2,600	2,075	7	17	2	0	255	470	63	45	134	55	33	225	41
42	Augusta State Hospital	Augusta, Me	Yes	Yes	1839	910	1,230	6				67	189	61	50	37	21	2	109	42
43	Bangor State Hospital	Bangor, Me	Yes	Yes	1901	875	933	1				107	194	52	72	48	3	2	116	43
44	Crownsville State Hospital	Crownsville, Md	Yes	Yes	1915	342	310	2	1	1	0	23	277	31	13	48	2	18	108	44
45	Eastern Shore State Hospital	Sykesville, Md	Yes	Yes	1894	2,400	2,201	4	0	1	0	208	278	108	59	80	57	0	160	46
46	Springfield State Hospital	Cotonsville, Md	Yes	Yes	1870	1,000	1,250	8	4	2	10	117	496	96	103	88	45	0	99	47
47	Spring Grove State Hospital	Boston, Mass	No	No	1912	1,200	80	13	7			150	1,550	366	58	422	228	0	30	48
48	Boston Psychopathic Hospital	Boston, Mass	No	No	1830	1,837	2,083	14	11	22	50	150	500	154	82	107	07	146	354	49
49	Bridgewater State Hospital	Bridgewater, Mass	No	No	1886	908	908								17	4	8	21	27	50
50	Danvers State Hospital	Danvers, Mass	No	No	1878	1,754	2,075	12	5	14	39	174	654	152	46	250	29	189	301	51
51	Foxboro State Hospital	Foxboro, Mass	No	No	1893	975	1,084	7	8	12	0	169	219	43	25	60	16	18	70	52
52	Gardner State Hospital	Gardner, Mass	No	No	1902	1,118	1,345	8	4	0	22	65	05	22	135	2	41	10	28	71
53	Grafton State Hospital	North Grafton, Mass	No	No	1882	1,162	1,427	0		17	16	33	32	26	1	14	4	16	58	54
54	Medfield State Hospital	Medfield, Mass	No	No	1896	1,564	1,774	10	6	12	22	150	163	46	118	68	13	117	142	55
55	Metropolitan State Hospital	Waltham, Mass	No	No	1930	1,300	1,108	4	0	5	0	81	163	26	104	11				
56	Northampton State Hospital	Northampton, Mass	No	No	1853	1,810	1,648	0	3	10	28	124	290	85	63	34	31	25	8	56
57	Taunton State Hospital	Taunton, Mass	No	No	1834	1,224	1,532	10	6	21	41	109	180	111	66	129	17	98	107	57
58	Westboro State Hospital	Westboro, Mass	No	No	1886	1,206	1,437	0	21	24	102	129	365	129	41	57	30	128	181	53
59	Worcester State Hospital	Worcester, Mass	No	No	1833	2,147	2,216	15	15	38	45	1	641	140	74	206	45	183	163	30
60	Ionla State Hospital	Ionla, Mich	Yes	Yes	1885	608	608	4	1	0	44	183	67	8	10	6	9	0	24	61
61	Kalamazoo State Hospital	Kalamazoo, Mich	Yes	Yes	1850	2,708	2,631	8	7	1	0	80	534	71	37	148	10	18	241	62
62	Newberry State Hospital	Newberry, Mich	Yes	Yes	1805	975	1,140	5	0	0	0	136	164	27	1	16	11	16	96	63
63	Pontiac State Hospital	Pontiac, Mich	Yes	Yes	1878	1,752	1,730	6	8	0	0	173	215	9	26	26	25	83	64	
64	Ann Arbor State Hospital	Ann Arbor, Mich	Yes	Yes	1906	64	61	0		2	5	13	215	9	47	46	102	1	65	
65	State Psychopathic Hospital	Traverse City, Mich	Yes	Yes	1885	2,300	2,068	9	2	21	33	168	224	52	41	143	57	124	66	
66	Traverse City State Hospital	Traverse City, Mich	Yes	Yes	1931	1,000	New	6	0	16	0	68								
67	Ypsilanti State Hospital	Ypsilanti, Mich	Yes	Yes	1885	1,700	1,695	5	4	21	45	68	452	65	65	140	17	169	135	68
68	Fergus Falls State Hospital	Fergus Falls, Minn	Yes	Yes	1890	1,448	1,448	6	1	0	30	100	438	63	103	125	36	66	147	69
69	Rochester State Hospital	Rochester, Minn	Yes	Yes	1870	1,093	1,764	6	1	0	30	105	532	57	78	154	21	100	201	70
70	St Peter State Hospital	St Peter, Minn	Yes	Yes	1882	850	880	4	8	2	0	43	322	102	85	103	18	98	71	
71	East Mississippi State Hospital	Jackson, Miss	Yes	Yes	1851	1,000	880	7	0	5	0	135	1,281	141	0	270	113	125	381	72
72	Mississippi State Hospital No 1	Fulton, Mo	Yes	Yes	1851	1,300	1,645	4	4	0	0	148	274	48	30	54	67	6	158	73
73	State Hospital No 2	St Joseph, Mo	Yes	Yes	1874	1,700	2,224	5	13	5	0	175	557	54	0	134	45	4	262	74
74	State Hospital No 3	Avada, Mo	Yes	Yes	1886	1,300	1,682	5	6	2	0	119	360	79	62	22	114	0	181	75
75	State Hospital No 4	Warrensburg, Mo	Yes	Yes	1907	648	1,130	4	6	3	0	68	327	49	0	113	27	10	104	76
76	Montana State Hospital	Warm Springs, Mont	Yes	No	1877	1,350	1,563	4	1	2	0	82								77
77	Hastings State Hospital	Ingleside, Neb	Yes	No	1888	1,406	1,463	5	0	1	0	167	303	50		222	4	5	85	70
78	Lincoln State Hospital	Lincoln, Neb	Yes	Yes	1870	1,180	1,161	4	0	1	0	100	98	15	0	28	1	1	85	70
79	Norfolk State Hospital	Norfolk, Neb	Yes	Yes	1887	943	935	5	7	7	0	57	70	13	0	28	1	1	85	70
80	Nevada State Hospital for Mental Diseases	Reno, Nev	Yes	Yes	1882	325	286	1	1	1	0	15	98	15	0	28	1	1	85	70
81	New Hampshire State Hospital	Concord, N H	Yes	Yes	1842	1,800	1,715	7	1	22	38	152	337	75	23	16	3	18	26	80
82	New Jersey State Hospital	Greystone Park, N J	Yes	Yes	1876	2,000	2,000	30	17	66	53	355	940	237	48	100	50	9	157	82
83	New Jersey State Hospital	Marlboro, N J	Yes	Yes	1911	2,000	2,000	5	5	6	0	52	0	0	207	202	33	339	335	83
84	New Jersey State Hospital	Trenton, N J	Yes	Yes	1848	2,500	2,661	15	4	38	60	267	780	249	0	257	05	6	84	84
85	New Mexico State Hospital	Las Vegas, N M	Yes	Yes	1801	750	610	1	1	1	0	40			107			303	85	
86	New York State Hospital	Binghamton, N Y	Yes	Yes	1881	2,301	2,850	15	12	32	42	240	366	88	60	141	21	14	87	86
87	Brooklyn State Hospital	Brooklyn, N Y	Yes	Yes	1893	2,760	3,584	26	14	20	30	441	1,223	300	673	363	51	210	210	87
88	Buffalo State Hospital	Buffalo, N Y	Yes	Yes	1880	1,014	2,308	15	15	66	25	238	484	128	143	141	42	707	643	88
89	Danmemora State Hospital	Danmemora, N Y	Yes	No	1900	618	773	3	3	0	0	101	81	18	47	0	0	16	01	92
90	Central Islip State Hospital	Central Islip, N Y	Yes	Yes	1908	1,215	1,190	8	22	30	20	76	260	77	84	63	24	184	100	92
91	Gowanda State Hospital	Wingdale, N Y	Yes	Yes	1924	1,970	1,600	0	14	10	12	75	43	246	9	22	0	106	68	93
92	Harlem Valley State Hospital	Poughkeepsie, N Y	Yes	Yes	1868	3,400	4,530	20	12	51	48	260	688	246	188	105	35	43	361	94
93	Hudson River State Hospital	Kings Park, N Y	Yes	Yes	1898	4,442	6,850	21	17	62	46	504	784	304	62	267	60	722	287	95
94	Knickerbocker State Hospital	New York City, N Y	Yes	Yes	1898	4,500	6,950	28	34	76	56	212	1,411	413	69	353	120	1,576	587	96
95	Manhattan State Hospital	Murray, N Y	Yes	No	1931	2,140	2,430	12	8	46	0	285	205	45	37	15	7	15	176	97
96	Marey State Hospital	Peacock, N Y	Yes	No	1859	1,113	1,174	3	8	2	0	265	121	86	28	30	2	17	30	98
97	Mattewan State Hospital	Middletown, N Y	Yes	No	1874	2,800	3,021	10	0	54	0	338	285	10	60	93	27	11	160	99
98	Middletown State Psychopathic Hospital	New York City, N Y	Yes	Yes	1870	200	171	0		67	0	24	307	48	52	138	66	6	100	
99	New York State Psychiatric Institute and Hospital	Brentwood, N Y	Yes	Yes	1931	4,000	2,000	11		4	0	108	0	1,802	0	0	7	19	101	

State	Hospital	No.	1901	1902	1903	1904	1905	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	2101	2102	2103	2104	2105	2106	2107	2108	2109	2110	2111	2112	2113	2114	2115	2116	2117	2118	2119	2120	2121	2122	2123	2124	2125	2126	2127	2128	2129	2130	2131	2132	2133	2134	2135	2136	2137	2138	2139	2140	2141	2142	2143	2144	2145	2146	2147	2148	2149	2150	2151	2152	2153	2154	2155	2156	2157	2158	2159	2160	2161	2162	2163	2164	2165	2166	2167	2168	2169	2170	2171	2172	2173	2174	2175	2176	2177	2178	2179	2180	2181	2182	2183	2184	2185	2186	2187	2188	2189	2190	2191	2192	2193	2194	2195	2196	2197	2198	2199	2200	2201	2202	2203	2204	2205	2206	2207	2208	2209	2210	2211	2212	2213	2214	2215	2216	2217	2218	2219	2220	2221	2222	2223	2224	2225	2226	2227	2228	2229	2230	2231	2232	2233	2234	2235	2236	2237	2238	2239	2240	2241	2242	2243	2244	2245	2246	2247	2248	2249	2250	2251	2252	2253	2254	2255	2256	2257	2258	2259	2260	2261	2262	2263	2264	2265	2266	2267	2268	2269	2270	2271	2272	2273	2274	2275	2276	2277	2278	2279	2280	2281	2282	2283	2284	2285	2286	2287	2288	2289	2290	2291	2292	2293	2294	2295	2296	2297	2298	2299	2300	2301	2302	2303	2304	2305	2306	2307	2308	2309	2310	2311	2312	2313	2314	2315	2316	2317	2318	2319	2320	2321	2322	2323	2324	2325	2326	2327	2328	2329	2330	2331	2332	2333	2334	2335	2336	2337	2338	2339	2340	2341	2342	2343	2344	2345	2346	2347	2348	2349	2350	2351	2352
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		Totals																	
		203	023	254	037	1 272	740	1 840	2 792	22 715	64,102	14 637	6 821	16 402	16 617	5 643	12 220	24,861	
State Asylums																			
1	State Hospital North	Yes	Yes	350	327	1	0	0	0	0	24	64	12	0				31	
2	State Hospital South	Yes	Yes	300	400	1	0	1	0	20	107	11	0	5			3	38	
3	Chester State Hospital	Yes	Yes	1894	1894	1	0	1	0	37	49	8	1	13			3	13	
4	Indiana Hospital for Criminal Insane	Yes	No	1891	230	2	1	0	0	3	4	0	1		5		3	4	
5	Asylum for Dangerous Insane	Yes	Yes	1890	242	2	1	0	0	1	14	0	1		13		0	3	
6	Central State Hospital	Yes	Yes	1891	83	74	0	0	0	5	14	1	5	4			8	5	
7	Eastern State Hospital	Yes	Yes	1873	1 770	5	1	0	0	130	540	75	0	0			27	18	
8	Western State Hospital	Yes	Yes	1817	1 000	1 022	0	0	0	07	533				187	27		240	
9	Western State Asylum	Yes	Yes	1894	1 500	1 022	0	0	0	102	425	126	0	0			18	7	
10	Anoka State Asylum	Yes	No	1900	1 030	1 030	1	11	0	50	0				227		76	214	
11	Hastings, Minn	Yes	Yes	1900	1 020	1 020	1	1	0	80	0	0	72	0	4	0	2	65	
12	Willmar State Asylum	Yes	Yes	1012	1 000	980	1	0	0	21	0	0	0	0	7	1	9	10	
13	Western State Hospital	Yes	Yes	1898	1 040	1 040	0	5	0	90	0	0	175	0	0	0	19	54	
14	Huntington State Hospital	Yes	Yes	1898	1 000	920	4	0	5	40	223	63	26	82	187	23	20	80	
15	Spencer State Hospital	Yes	No	1889	1 200	833	3	0	1	33							14	13	
16	Western State Hospital	Yes	Yes	1849	1 216	1 481	3	0	0	80	327	34		30			7	129	
Totals				13 413	15 237	41	7	24	10	866	9,208	333	310	149	630	62	167	920	

List of Hospitals and Other Institutions Caring for Patients with Nervous or Mental Diseases—Continued

Marginal No	Institution	Location	Visited	Questionnaire Returned	Established	Rated Capacity	Patients	Medical Staff		Nurses		Admissions		Discharges			Deaths	Marginal No					
								Resident	Visiting	Registered	Student	First	Readmissions	Transfers	Recovered	Improved	Unimproved	Other					
State Schools and Colonies for Mental Defectives																							
1	Partlow State School	Tusculooosa, Ala	Yes	No	1921	500	730	1	0	0	0	717	12	7	0	133	13	43	108				
2	Sonoma State Home	Lidridge, Calif	Yes	Yes	1885	2,086	2,301	6	0	12	12	176	1	0	25	0	0	3	11				
3	Pacific Colony	Spadra, Calif	Yes	Yes	1920	270	275	1	1	0	0	176	7	0	0	3	6	3	26				
4	State Home and School for Mental Defectives	Grand Junction, Colo	Yes	Yes	1920	160	158	1	0	0	0	66	0	0	0	0	10	1	7				
5	State Home for Mental Defectives	Ridge, Colo	Yes	Yes	1920	160	158	1	0	0	0	66	0	0	0	0	10	1	7				
6	Mansfield State Training School and Hospital	Mansfield Depot, Conn	Yes	Yes	1914	1,100	806	0	0	0	0	98	1	6	0	9	5	7	12				
7	Delaware Colony	Stockley, Del	Yes	Yes	1921	220	168	0	1	0	0	21	2	1	0	0	2	2	1				
8	Florida Farm Colony	Gainesville, Fla	Yes	Yes	1919	500	454	2	0	0	0	93	7	0	40	0	0	1	16				
9	Georgia Training School for Mental Defectives	Gracewood, Ga	Yes	No	1921	200	249	1	0	0	0	24	1	0	0	0	2	2	1				
10	Idaho State School and Colony	Nampa, Ida	Yes	Yes	1918	431	363	1	0	0	0	24	1	0	0	0	0	0	9				
11	Dixon State Hospital	Dixon, Ill	Yes	Yes	1918	2,300	2,877	11	0	8	18	103	2	0	5	19	3	10	18				
12	Lincoln State School and Colony	Fort Wayne, Ind	Yes	Yes	1865	2,927	2,762	0	0	6	3	471	39	5	0	37	146	9	147				
13	Muscatatuck Colony	Butterville, Ind	Yes	Yes	1888	1,130	1,670	3	12	2	0	434	17	0	0	136	126	2	85				
14	Hospital for Epileptics and School for Feeble-minded	Woodward, Ind	Yes	Yes	1920	375	178	0	1	0	0	101	3	1	0	0	0	0	53				
15	Iowa Institute for Feeble-minded Children	Woodward, Ia	Yes	Yes	1917	740	816	4	0	0	0	63	0	4	0	0	1	2	14				
16	State Training School	Glenwood, Kan	Yes	Yes	1878	1,600	1,624	3	4	1	0	91	7	0	1	34	24	3	32				
17	State Institute for Feeble-minded	Frankfort, Ky	Yes	Yes	1881	1,000	1,011	2	1	0	0	80	0	1	0	0	2	0	34				
18	State Colony and Training School	Alexandria, La	Yes	Yes	1906	1,718	688	2	1	0	0	110	0	0	0	47	0	0	17				
19	Pownall State School	Pownall, Me	Yes	No	1918	810	874	3	5	7	0	20	1	0	0	11	3	4	14				
20	Rosewood State Training School	Bellevue, Mass	Yes	No	1908	1,050	1,060	3	0	0	0	78	0	0	0	0	0	0	10				
21	Bellevue State Training School	Bellevue, Mass	No	No	1922	1,205	1,201	6	3	1	0	112	7	1	0	20	12	1	21				
22	Walker E. Fernald State School	Waltham, Mass	No	No	1848	1,514	1,671	8	2	4	0	104	5	1	0	14	27	1	21				
23	Wrentham State School	Wrentham, Mass	No	No	1906	1,578	1,605	8	3	0	0	130	11	3	0	23	25	2	24				
24	Michigan Home and Training School	Lapeer, Mich	Yes	Yes	1895	3,713	3,036	5	1	2	0	594	36	7	0	97	0	75	62				
25	Minnesota School for Feeble-minded	Farhauf, Minn	Yes	Yes	1879	2,100	2,005	4	3	0	10	266	40	14	0	130	0	10	86				
26	Missouri State School	Fillisville, Miss	Yes	Yes	1921	500	300	1	0	0	0	142	0	0	0	0	35	9	27				
27	Missouri State School	Marshall, Mo	Yes	Yes	1900	1,045	1,045	3	4	1	0	921	0	0	0	0	0	0	34				
28	Montana State Training School for Feeble-minded	Boulder, Mont	Yes	Yes	1912	350	370	1	4	1	0	60	8	0	0	23	6	9	27				
29	Nebraska Institute for Feeble-minded	Beatrice, Neb	Yes	Yes	1886	1,115	860	1	0	0	0	11	5	0	0	5	21	0	20				
30	Nebraska Institute for Feeble-minded	Laconia, N H	Yes	Yes	1901	550	521	2	2	1	0	102	5	0	0	10	6	0	32				
31	Laconia State School	New Lisbon, N J	Yes	Yes	1910	600	677	1	1	3	0	66	2	0	0	18	0	1	30				
32	State Colony for Feeble-minded Males	Totowa, N J	Yes	No	1928	480	543	1	1	0	0	20	0	0	0	0	0	0	10				
33	State Training School	Vineland, N J	Yes	Yes	1898	1,200	1,352	1	1	4	0	69	2	7	0	33	1	7	33				
34	Vineland State School	Woodbine, N J	Yes	Yes	1921	480	472	0	1	0	0	94	5	0	0	0	11	7	34				
35	Woodbine Colony for Feeble-minded Males	Los Lunas, N M	Yes	Yes	1920	48	41	1	0	0	0	18	0	1	0	0	1	1	35				
36	New Mexico Home and School for Mental Defectives	Napamoch, N Y	Yes	No	1921	850	915	4	2	1	0	286	37	110	0	183	0	7	36				
37	Institute for Male Defective Delinquents	Albion, N Y	Yes	No	1893	234	134	1	1	1	0	8	0	44	0	0	0	0	37				
38	Institute for Mentally Defective Delinquent Women	Thells, N Y	Yes	Yes	1910	2,100	2,736	5	2	5	0	369	31	33	0	98	57	0	38				
39	Leitchworth Village	Newark, N Y	Yes	Yes	1878	802	1,936	0	12	0	0	265	0	0	0	0	0	0	39				
40	Newark State School	Rome, N Y	Yes	Yes	1894	3,085	3,562	0	11	8	0	452	47	11	0	120	51	50	40				
41	Rome State School	Syracuse, N Y	Yes	Yes	1851	565	1,112	4	6	5	0	353	45	2	0	117	15	270	03				
42	Syracuse State School	Wassau, N Y	Yes	Yes	1910	2,100	1,115	5	0	4	0	81	2	0	0	117	15	10	41				
43	Wassau State School	Kingston, N C	Yes	No	1917	500	633	2	1	1	0	942	74	288	0	22	24	11	42				
44	Cuswell Training School	Grafton, N D	Yes	Yes	1911	500	633	2	1	1	0	62	4	0	0	0	0	46	43				
45	North Dakota Institute for Feeble-minded	Apple Creek, Ohio	Yes	Yes	1904	698	658	7	3	2	0	71	3	0	0	25	13	1	44				
46	Institute for Feeble-minded	Columbus, Ohio	Yes	Yes	1911	450	478	1	0	0	0	444	7	292	0	0	89	219	45				
47	Institute for Feeble-minded	Orient, Ohio	Yes	Yes	1893	2,045	2,078	1	0	2	0	100	44	0	0	0	0	0	51				
48	Institute for Feeble-minded	Find, Okla	Yes	Yes	1893	2,500	2,446	4	3	4	0	115	0	210	0	86	0	2	47				
49	Oklahoma Institute for Feeble-minded	Salem Ore	Yes	No	1907	750	746	0	1	2	0	51	8	14	0	19	0	2	37				
50	Oregon State Institute for Feeble-minded	Laurelton Pa	Yes	Yes	1908	870	841	3	0	0	0	80	12	0	0	0	0	13	49				
51	Laurelton State Village	Pennhurst, Pa	Yes	No	1913	650	664	3	0	0	0	55	10	0	0	0	0	0	50				
52	Pennhurst State School	Polk, Pa	Yes	Yes	1908	1,500	1,280	4	4	5	0	145	5	0	0	0	0	0	51				
53	Polk State School	Lafayette, R I	Yes	Yes	1897	2,000	2,611	7	12	4	0	264	10	0	0	32	14	0	52				
54	Fater School	Redfield, S D	Yes	Yes	1901	824	630	1	1	1	0	284	10	0	0	0	0	0	53				
55	State School and Home for Feeble-minded	Donelson, Tenn	Yes	No	1923	500	500	2	0	1	1	135	13	0	0	2	11	0	54				
56	Tennessee Home and Training School for Feeble-minded	Austin, Tex	Yes	No	1923	500	500	2	0	0	0	135	13	0	0	0	0	0	55				
57	Austin State School	Austin, Tex	Yes	No	1917	1,040	1,025	3	1	0	0	20	0	0	0	0	0	0	56				
58	Utah State Training School	Utah Fork, Utah	Yes	Yes	1931	300	246	1	1	0	0	45	1	1	0	0	0	0	57				
59	Brandon State School	Brandon Vt	Yes	Yes	1912	300	246	1	1	0	0	45	1	1	0	0	0	0	58				
60	State Colony for Epileptics and Feeble-minded	Colony, Va	Yes	Yes	1911	968	890	3	8	1	0	16	1	3	0	18	6	24	59				
61	State Custodial School	Medical Lake Wash	Yes	Yes	1900	1,200	1,280	2	0	0	0	210	12	0	0	0	0	0	60				
62	West Virginia Training School	St Marys, W Va	Yes	Yes	1932	80	56	1	1	0	0	60	0	2	0	0	0	0	61				
63	Northern Wisconsin Colony and Training School	Chippewa Falls, Wis	Yes	Yes	1897	1,273	1,330	4	2	2	0	118	0	25	0	0	0	0	62				
64	Southern Wisconsin Colony and Training School	Union Grove, Wis	Yes	Yes	1910	408	577	3	0	1	0	166	0	0	7	0	0	94	63				
65	Wyoming State Training School	Lander, Wyo	Yes	Yes	1912	108	194	0	2	2	0	27	1	0	0	3	0	0	64				
Totals																							
						65,689	65,014	100	127	150	52	4,083	0	741	523	1	182	70	1,774	965	1,220	1	504

State Hospitals, Schools and Colonies for Epileptics

1	Indiana	Windsor for Epileptics	Yes	No	1005	874	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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* County institutions marked (*) are classified as hospitals the others as asylums except Wayne County Training School which is a school for the mentally deficient

List of Hospitals and Other Institutions Caring for Patients with Nervous or Mental Diseases—Continued

Marginal No	Location	County	Institutions—Continued	Visited	Questionnaire Returned	Established	Rated Capable	Average Patients	Medical Staff		Nurses		Attendants	Admissions			Discharges			Deaths	Marginal No															
									Resident	Visiting	Registered	Student		First	Readmissions	Transfers	Recovered	Unimproved	Other																	
50	Sheboygan County Asylum for Chronic Insane	Wis	1882	Yes	Yes	206	202	202	0	1	0	0	0	4	0	0	0	0	0	9	50															
51	Whitehall, Wis	Wis	1900	Yes	Yes	114	116	116	0	1	0	0	0	11	0	0	0	0	3	7	51															
52	Vernon County Asylum for Insane	Wis	1888	Yes	Yes	123	117	117	0	1	1	0	1	0	0	0	0	0	0	4	52															
53	Elkhorn, Wis	Wis	1882	Yes	No	1852			0	1	0	0	0	0	12	2	0	0	0	7	53															
54	West Bend, Wis	Wis	1890	Yes	Yes	150	140	140	0	1	0	0	6	0	0	0	0	0	8	16	54															
55	Waukesha County Asylum	Wis	1902	Yes	Yes	216	205	205	0	1	0	0	8	0	0	0	0	0	1	1	55															
56	Waukegan County Asylum for Chronic Insane	Wis	1902	Yes	Yes	150	144	144	0	1	0	0	10	1	1	18	2	2	1	16	56															
57	Winnebago County Asylum	Wis	1894	Yes	Yes	237	239	239	0	1	0	0	8	0	0	0	0	0	7	16	57															
58	Wood County Asylum for Chronic Insane	Wis	1890	No	Yes	215	212	212	0	1	0	0	8	0	0	0	0	0	1	7	58															
Totals																					26,724	24,600	57	110	133	117	2,250	3,964	1,348	495	848	1,406	456	624	2,485	
City Institutions																																				
1	Laguna Honda Home	Calif	184	No	No	510	510	510	2	5	19	0	7	360	11	0	46	245	210	233	1															
2	City Hospital for Mental Diseases	Calif	1911	Yes	Yes	100	52	52	1	1	1	0	26	157	56	0	38	68	53	27	2															
3	Baltimore City Hospitals (Psychopathic Unit)	Md	1881	Yes	Yes	125	301	301	12	42	3	0	107			5	263	29	222	323	3															
4	City Sanitarium	Mo	1869	Yes	Yes	185	3,117	3,117	12	14	0	0	12	113	27	13	0	21	1	9	4															
5	St. Louis Training School	Mo	1925	Yes	Yes	140	545	545	6	6	27	0	19	1,078	101	625	0	389	568	112	5															
6	New York City Children's Hospital	N Y	1847	Yes	Yes	1,400	742	742	3	4	43	42	64	698	4	27	0	371	130	15	6															
7	City Hospital, Psychopathic Unit	Ohio	1928	Yes	No	300	200	200	11	10	14	0	104	1,485	163	67	453	190	94	619	7															
8	Philadelphia Hospital for Mental Diseases	Pa	1815	Yes	Yes	2,500	4,518	4,518	8	13	22	45	212	540	37	51	75	138	10	239	8															
9	Pittsburgh City Home and Hospital	Pa	1893	Yes	Yes	1,281	2,060	2,060	52	94	135	89	982	4,571	494	183	184	2,092	1,244	678	9															
Totals																					9,143	12,263	52	94	135	89	982	4,571	494	183	184	2,092	1,244	678	1,439	
Private Sanatoriums for Mental Patients																																				
Private, Endowed Mental Hospitals																																				
1	Neuropsychiatric Institute and Hospital	Conn	1822	Yes	Yes	200	176	176	8	4	24	6	87	234	82	4	72	81	89	124	1															
2	Institute of Human Relations	Conn	1911	Yes	No	51	26	26	4	0	16	0	0	160	0	0	4	39	76	1	2															
3	Philips Psychiatric Clinic	Md	1891	Yes	No	80	80	80	25	6	21	30	30	202	50	0	45	178	70	49	3															
4	Sheppard and Enoch Pratt Hospital	Md	1891	Yes	Yes	275	247	247	13	8	43	37	101	218	123	42	187	108	107	18	4															
5	McLean Hospital	Mass	1818	Yes	Yes	312	209	209	11	10	101	118	51	115	87	9	59	25	31	23	5															
6	Bloomfield Hospital	N Y	1821	Yes	Yes	300	251	251	12	10	50	50	53	151	87	4	60	116	46	19	6															
7	Hastings Hillside Hospital	N Y	1927	Yes	Yes	40	37	37	3	7	2	0	8	80	39	0	27	29	35	2	7															
8	Friends Hospital	Pa	1813	Yes	Yes	190	155	155	4	6	30	27	57	117	12	10	14	66	38	13	8															
9	Institute of the Pennsylvania Hospital	Pa	1920	Yes	Yes	60	34	34	5	3	13	0	0	141	284	8	35	135	74	70	10															
10	Pennsylvania Hospital, Department Mental and Nervous Diseases	Pa	1751	Yes	Yes	280	211	211	2	2	62	54	47	188	88	8	28	74	19	23	11															
11	Butler Hospital	Pa	1841	Yes	Yes	174	142	142	5	14	26	26	61	141	3	0	32	105	23	1	12															
12	Brattleboro Retreat	Vt	1836	Yes	Yes	500	622	622	4	3	6	0	61	196	36	0	32	105	23	1																
Totals																					2,382	2,193	108	57	408	357	569	2,063	861	80	347	1,108	635	453	212	
Church Control																																				
1	Merseyville Sanitarium	Ill	1915	Yes	Yes	200	145	145	1	1	20	20	12	234	20	15	91	132	23	42	1															
2	Mount Mercy Sanitarium	Ind	1928	Yes	Yes	20	22	22	0	24	4	0	0	110	10	10	17	47	15	12	2															
3	St. Bernard's Hospital	Ia	1887	Yes	Yes	230	198	198	0	4	7	13	13	268	36	5	150	82	21	11	3															
4	St. Joseph Sanitarium	Ia	1895	Yes	Yes	225	153	153	0	8	8	2	12	90	37	6	4	51	12	41	4															
5	De Paul Sanitarium	La	1870	Yes	Yes	250	250	250	0	1	6	0	12	245	10	170	10	10	5	31	5															
6	Mount Hope Retreat	La	1870	Yes	Yes	60	60	60	1	2	25	20	70	60	43	6	30	43	6	30	6															
7	Merseywood Sanitarium	Md	1925	Yes	Yes	50	30	30	1	2	14	11	10	135	3	6	20	60	23	29	7															
8	St. Joseph's Retreat	Mich	1860	Yes	Yes	400	300	300	1	3	14	11	30	230	538	6	20	403	14	33	8															
9	St. Vincent's Sanitarium	Mich	1838	Yes	No	300	300	300	0	2	13	0	25	87	32	4	15	53	32	0	15	9														
10	Providentia Retreat	Mo	1860	Yes	Yes	200	180	180	1	2	6	8	3	59	1	1	1	48	6	8	10	10														
11	St. Vincent's Retreat	N Y	1849	Yes	Yes	200	180	180	2	10	7	11	9	67	36	6	17	24	29	10	11	11														
12	St. Francis Hospital, Psychiatric Unit	Pa	1895	Yes	No	240	182	182	3	10	8	11	9	1,721	201	73	22	1,341	366	16	133	12														
13	St. Mary's Hill Sanitarium	Wis	1912	Yes	Yes	190	97	97	2	0	0	0	70	411	128	0	146	271	82	10	13															
Totals																					3,121	2,727	12	54	138	121	266	3,737	1,097	132	703	2,432	828	292	343	
Independent Association Control																																				
1	Alhambra Sanatorium	Calif	1924	Yes	Yes	12	6	6	1	0	1	0	1	31	4	0	2	15	17	0	4	1														
2	Compton Sanitarium	Calif	1915	Yes	Yes	130	69	69	4	2	1	0	27	14	73	5	62	143	42	24	2															
3	Livermore Sanitarium	Calif	1892	Yes	Yes	100	100	100	1	0	30	0	40	114	30	0	86	20	12	9	3															
4	Park Sanitarium	Calif	1917	Yes	Yes	32	22	22	1	0	1	0	8	19	2	15	12	4	15	1	5															
5	Twin Pines Sanitarium	Calif	1923	Yes	Yes	20	1	1	1	2	4	0	14																							

List of Hospitals and Other Institutions Caring for Patients with Nervous or Mental Diseases—Continued

Marginal No	Location	Questionnaire Returned	Established	Rated Capacity	Admitted Patients	Medical Staff		Nurses		Admissions			Discharges			Deaths	Marginal No	
						Resident	Visiting	Registered	Student	Attendants	First	Readmissions	Transfers	Recovered	Unimproved			Other
Partnership Control—Continued																		
5	Simpson Major Sanitarium	Yes	1903	35	15	2	0	0	0	7	128	26	27	61	64	0	7	
6	Broad Oaks Sanatorium	Yes	1901	80	42	2	0	0	0	14	135	72	0	40	74	0	7	
7	Sawyer Sanatorium	Yes	1895	40	28	1	0	0	0	17	105	10	0	111	26	0	8	
8	Duke Sanitarium	Yes	1909	35	19	1	0	0	0	11	165	10	0	2	26	0	9	
9	Guthrie, Okla	Yes	1904	32	8	0	0	0	0	5	71	15	0	21	21	0	10	
10	Waverleigh Sanatorium	Yes	1900	43	28	2	0	4	12	3	71	15	0	40	21	0	10	
11	Merced Sanitarium	Yes	1900	50	26	2	0	1	0	11	775	191	0	206	154	23	11	
Totals																		
				670	419	17	18	16	20	151	775	191	0	206	269	23	62	
Individual Control																		
1	Hill Crest Sanitarium	Yes	1925	50	25	1	2	1	0	6	170	116	0	15	15	75	4	
2	Dr Barnes Sanitarium	Yes	1904	75	55	3	0	1	0	14	100	71	0	89	72	103	10	
3	Blythwood	Yes	1906	60	50	0	0	0	0	40	95	22	0	9	51	9	3	
4	Hall Brooke Sanitarium	Yes	1902	100	100	2	2	0	0	12	115	24	0	21	29	48	4	
5	Miami Retreat	Yes	1927	65	12	1	0	2	0	2	115	0	1	7	0	0	6	
6	Dr Randolph's Sanitarium	Yes	1930	9	9	1	0	0	0	0	11	0	0	25	23	3	7	
7	Stone Mountain Sanitarium	Yes	1920	35	24	2	1	0	0	6	16	7	0	8	11	0	8	
8	Kenilworth, Ill	Yes	1905	0	27	2	1	0	0	27	15	0	0	7	0	0	9	
9	Peoria, Ill	Yes	1917	25	16	1	0	0	0	11	41	4	0	7	30	0	10	
10	Peoria, Ill	Yes	1910	25	14	1	0	0	0	11	51	12	0	30	31	0	11	
11	Resthaven Sanitarium	Yes	1906	70	53	0	0	2	0	16	80	6	17	68	27	9	12	
12	Wilgus Sanitarium	Yes	1900	35	31	1	2	1	0	12	151	0	0	70	38	0	13	
13	Pennington Sanitarium	Yes	1928	17	0	2	0	0	0	6	46	7	0	15	17	3	14	
14	Grandview Sanitarium	Yes	1903	37	20	0	0	0	0	0	89	8	1	10	42	22	15	
15	Beechurst Sanitarium	Yes	1900	30	12	1	0	2	0	8	5	0	0	14	105	3	16	
16	High Oaks Sanatorium	Yes	1887	35	21	1	0	1	0	10	99	91	0	14	105	3	17	
17	Dr Stokes Sanatorium	Yes	1904	15	15	2	0	0	0	4	158	40	4	2	1	0	18	
18	New Fenwick Sanitarium	Yes	1902	64	20	3	2	0	0	16	170	40	0	2	1	0	19	
19	Albion Manor	Yes	1910	24	18	1	1	0	0	6	53	28	1	22	16	62	20	
20	Chestnut Lodge Sanitarium	Yes	1910	24	23	1	1	0	0	8	32	10	4	5	23	8	21	
21	Gundry Sanitarium	Yes	1900	45	25	1	0	0	0	14	10	3	4	3	11	7	22	
22	Riggs Cottage Sanitarium	Yes	1906	25	25	1	0	2	0	10	11	4	2	2	5	3	23	
23	Bournewood Hospital	Yes	1886	17	12	1	0	0	0	0	11	4	0	2	2	2	24	
24	Glenside Sanatorium and Hospital	Yes	1909	50	37	3	4	8	0	17	61	11	8	1	27	10	25	
25	Ring Sanatorium and Hospital	Yes	1870	60	44	3	0	6	38	15	150	79	12	96	63	0	26	
26	Valleyhead	Yes	1920	20	14	2	0	1	0	0	104	22	4	1	58	94	27	
27	Westwood Lodge	Yes	1922	21	18	2	0	0	0	24	1	19	4	1	36	7	28	
28	Dr Byrd's Sanitarium	Yes	1910	30	19	1	0	0	0	4	30	18	11	20	10	8	29	
29	G. W. Robinson Sanitarium	Yes	1923	50	28	3	0	0	0	11	211	18	0	1	12	3	30	
30	Belvedere, N. Y.	Yes	1911	72	24	1	0	0	0	8	63	21	3	0	04	0	31	
31	Charles Private Hospital	Yes	1927	45	27	1	1	1	0	0	40	10	0	63	11	22	32	
32	Riverlawn Sanatorium	Yes	1902	00	47	3	7	0	0	8	63	21	3	0	04	0	33	
33	Crichton House	Yes	1920	20	18	1	0	0	0	0	40	10	0	0	7	22	34	
34	Four Winds	Yes	1925	19	28	0	0	0	0	12	51	5	0	12	4	0	35	
35	Glenmary Sanitarium	Yes	1880	50	14	1	0	0	0	10	8	8	0	2	2	1	36	
36	Interpines	Yes	1890	75	46	3	0	0	0	10	26	22	4	0	0	0	37	
37	Pinewood Sanitarium	Yes	1911	25	22	1	0	0	0	2	0	0	0	2	0	0	38	
38	Dr Rogers' Hospital	Yes	1923	25	14	2	0	4	0	0	37	3	0	1	25	0	39	
39	Stony Lodge	Yes	1905	16	12	4	0	0	0	6	54	6	5	5	17	0	40	
40	West Hill	Yes	1905	40	25	2	0	0	0	8	54	6	5	5	17	0	41	
41	White Oak Farm	Yes	1911	19	12	2	0	0	0	4	118	240	0	268	72	1	42	
42	Glenwood Park Sanitarium	Yes	1905	35	18	1	0	0	0	0	0	0	0	0	0	0	43	
43	Dr Gayer Sanitarium	Yes	1905	20	7	1	0	0	0	0	0	0	0	0	0	0	44	
44	Aleahy Hospital	Yes	1915	20	20	1	0	0	0	0	0	0	0	0	0	0	45	
45	Brookwood Farm	Yes	1920	16	6	1	0	0	0	0	0	0	0	0	0	0	46	
46	Burn Brae Hospital	Yes	1920	30	42	1	1	0	0	15	12	4	0	17	3	4	47	
47	Dufur Hospital	Yes	1918	50	30	1	1	0	0	7	12	4	0	8	3	4	48	
48	Easton Sanitarium	Yes	1895	70	16	1	1	1	0	4	12	1	0	18	11	0	49	
49	Fyvie Sanitarium	Yes	1911	12	8	1	0	0	0	0	0	0	0	0	0	0	50	
50	Gladwyne Colony	Yes	1912	70	08	0	2	0	0	0	0	0	0	0	0	0	51	
51	Wood Lea Sanitarium	Yes	1908	14	9	1	0	0	0	17	0	0	0	0	0	0	52	
52	City View Sanitarium	Yes	1900	60	38	2	0	0	0	6	29	0	0	0	0	0	53	
53	Lynnhurst Sanitarium	Yes	1904	20	7	2	0	0	0	0	0	0	0	0	0	0	54	
54	St Albans Sanatorium	Yes	1915	15	20	2	0	0	0	12	142	30	0	170	24	7	55	
55	Meadows Sanatorium	Yes	1918	40	22	0	0	1	0	10	69	21	0	31	17	0	56	
56	Puget Sound Sanatorium	Yes	1909	32	18	1	0	0	0	7	09	21	0	0	2	7	57	
Totals																		
				2,168	1,262	83	73	113	43	530	2,975	681	04	972	1,120	414	229	

List of Hospitals and Other Institutions Caring for Patients with Nervous or Mental Diseases--Continued

Marginal No	Location	Visited	Questionnaire Returned	Established	Rated Capacity	Average Patients	Medical Staff		Nurses		Attendants	Admissions			Discharges				Deaths	Marginal No		
							Resident	Visiting	Registered	Student		First	Readmissions	Transfers	Recovered	Unimproved	Other					
Individual Control--Continued																						
37	Englewood Sanitarium	Yes	No	1916	40	22	1	4	1	0	0	24	10	4	0	20	4	0	5	37		
38	Lakewood Sanatorium	Yes	No	1928	15	12	1	0	0	0	1	7	1	1	0	0	0	0	2	38		
39	Dr Bell's Private Rest Home	Yes	Yes	1922	25	4	1	1	1	0	1	0	0	0	0	0	0	0	40	39		
40	Greenmont on Hudson	Yes	Yes	1830	19	10	1	1	1	0	5	0	1	1	0	3	0	0	41	40		
41	Binghamton, N Y	Yes	Yes	1910	10	8	1	1	1	0	2	0	0	0	0	0	0	0	42	41		
42	Dr Lyons' Sanitarium	Yes	No	1923	25	17	0	2	1	0	7	0	0	0	0	0	0	0	43	42		
43	Dr Wellington's House	Yes	No	1880	13	10	1	0	2	0	3	0	0	0	0	0	0	0	44	43		
44	Cedarcrest Sanitarium	Yes	Yes	1919	30	13	0	0	1	0	0	41	0	0	0	0	0	0	45	44		
45	Wright's Sanitarium	Yes	Yes	1910	25	13	0	2	1	0	2	0	0	0	0	0	0	0	46	45		
46	Orest View Sanitarium	Yes	No	1911	15	4	0	0	0	0	5	0	0	0	0	0	0	0	47	46		
47	Favorien Farm	Yes	No	1920	12	2	0	6	1	0	3	0	0	0	0	0	0	0	48	47		
48	Perfect Rest	Yes	No	1914	10	2	0	0	1	0	4	0	0	0	0	0	0	0	49	48		
49	Hayes Sanatorium	Yes	Yes	1920	30	10	1	1	0	0	3	40	5	35	30	5	11	1	50	49		
50	Mountain View Sanitarium	Yes	No	1917	0	4	1	0	0	0	1	13	0	0	10	5	0	0	51	50		
51	Sunnycroft Sanatorium	Yes	Yes	1925	10	4	0	0	0	0	0	15	0	0	0	5	0	0	52	51		
Totals						1,110	973	17	51	33	0	615	91	62	239	204	40	51	73			
Private Homes and Schools for Mental Defectives																						
1	The Cedars	Yes	No	1910	36	29	0	3	0	0	0	5	2	0	0	3	0	0	0	1	2	
2	St Mary of Providence Institute	Yes	No	1926	100	60	1	2	0	0	8	8	0	0	1	3	2	3	2	3	4	
3	Beverly Farm	Yes	Yes	1897	80	41	1	1	15	0	0	0	0	0	0	0	0	0	0	5	5	
4	Mary F. Fogue Sanitarium and School	Yes	Yes	1903	60	50	1	1	0	0	7	0	0	0	0	0	0	0	0	6	6	
5	Powell School for Backward and Nervous Children	Yes	Yes	1903	65	50	1	1	0	0	0	0	0	0	0	0	0	0	0	7	7	
6	Beth Hill	Yes	Yes	1920	25	5	0	0	0	0	0	11	2	1	2	7	6	0	0	8	8	
7	Hill Top School	Yes	No	1923	24	20	0	1	0	0	6	0	0	0	0	0	0	0	0	9	9	
8	Evangelical Emmaus Home for Epileptics and Feeble-minded	Yes	Yes	1893	125	100	1	0	0	0	7	5	1	0	0	0	13	0	14	10	10	
9	Evangelical Emmaus Home for Epileptics and Feeble-minded	Yes	Yes	1901	141	113	0	1	0	0	22	7	0	2	0	1	1	5	5	11	11	
10	Trowbridge Training School for Nervous and Backward Children	Yes	Yes	1917	25	20	1	0	0	0	8	5	10	0	0	4	0	1	1	12	12	
11	Baneroft School	Yes	Yes	1883	105	93	1	14	0	0	22	11	2	0	1	14	2	1	1	13	13	
12	Maplehurst School	Yes	No	1888	17	13	0	2	3	0	35	53	0	3	0	7	0	14	6	14	14	
13	Training School at Vineland	Yes	Yes	1918	600	532	0	3	0	0	3	0	0	0	2	7	0	0	15	15		
14	Bailey Hall	Yes	No	1918	40	28	0	3	1	0	3	0	0	0	0	0	0	0	16	16		
15	Binghamton Train School for Nerv, Backward and Mental Def	Yes	Yes	1881	50	32	0	1	1	0	7	0	0	0	1	3	4	2	17	17		
16	Fergusons Sanatorium School	Yes	Yes	1910	12	6	1	1	0	0	1	9	0	0	1	3	4	0	18	18		
17	Frances School for Retarded Children	Yes	No	1912	12	5	0	1	0	0	1	0	0	0	0	0	0	0	19	19		
18	Gary de Vabre Academy	Yes	No	1905	18	7	0	5	0	0	0	0	0	0	0	0	0	0	20	20		
19	Newlands School	Yes	No	1931	0	2	0	0	0	0	0	0	0	0	0	0	0	0	21	21		
20	Osego School for Backward Children	Yes	No	1922	22	20	0	0	0	0	0	0	0	0	0	0	0	0	22	22		
21	Sound View School	Yes	No	1919	23	16	0	1	1	0	0	0	0	0	0	0	0	0	23	23		
22	Wharton Memorial Institution	Yes	Yes	1907	170	130	0	0	0	0	100	96	1	0	0	19	5	22	16	24	24	
23	Elwyn Training School	Yes	Yes	1852	1,045	1,000	3	7	3	5	7	0	0	0	0	0	0	0	25	25	25	
24	Martha Lloyd School	No	Yes	1897	40	25	0	1	0	0	8	7	2	0	2	2	0	0	26	26	26	
25	Gundry Home and Training School for Feeble-minded	Yes	Yes	1904	80	70	0	1	0	0	0	0	0	0	0	0	0	0	27	27	27	
26	Bethesda Lutheran Home for Feeble-minded and Epileptics	Yes	No	1904	300	300	0	1	0	0	13	49	0	3	0	7	6	0	28	28	28	
27	St Coletta Institute	Yes	No	1904	250	175	0	1	0	0	0	0	0	0	0	0	0	0	29	29	29	
Totals						3,311	2,884	10	50	29	5	207	34	9	7	70	41	47	70			
Private Institutions for Epileptics																						
1	Psychoanalytic Sanatorium	Yes	Yes	1920	25	18	0	2	1	0	0	1	3	0	0	6	0	0	1	1	1	
2	Woodlawn Sanitarium	Yes	Yes	1907	12	8	1	2	0	0	3	0	0	0	0	1	1	0	2	2	2	
3	Passavant Memorial Homes for the Care of Epileptics	Yes	No	1895	200	130	0	3	1	0	0	0	0	0	0	0	0	0	3	3	3	
Totals						237	153	1	7	2	0	1	3	0	0	7	1	0	2			
Private Institutions for Drug and Alcoholic Addicts																						
1	Dr Taylor's Private Hospital	Yes	Yes	1916	18	0	1	0	1	0	2	80	204	0	372	0	0	0	2	1	1	
2	Dr Vrooman's Sanitarium	Yes	No	1897	17	6	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	
3	Washingtonian Home	Yes	Yes	1887	34	10	1	1	0	0	6	241	107	0	17	0	0	1	3	3	3	
4	Dr Leonard's Private Sanitarium	Yes	Yes	1911	25	25	1	0	0	0	0	0	0	0	0	0	0	0	4	4	4	
5	Central Park West and Towns Hospital	Yes	Yes	1901	60	15	1	3	8	0	0	481	103	0	579	0	0	1	1	5	5	
6	Whitesboro Sanitarium and Adirondack Annex	Yes	Yes	1893	15	1	1	0	0	0	1	17	0	0	17	17	0	0	0	6	6	
Totals						150	48	5	3	9	0	980	397	0	968	17	0	1	3			

HOSPITALS REGISTERED BY THE AMERICAN MEDICAL ASSOCIATION

The following list contains the names of 6,562 hospitals, sanatoriums and related institutions that are located in the United States and 204 in the insular possessions. It omits the names of 527 hospitals which, after investigation, were not accepted. The inclusion of the name of any institution may be taken as an indication that evidence concerning irregular or unsafe practices in that institution has not come to the attention of the Council on Medical Education and Hospitals. The list in each state is given in two sections: (1) hospitals and sanatoriums, and (2) related institutions. The related institutions include some general hospitals lacking certain essentials, nursing homes, school infirmaries, prison infirmaries, custodial and other institutions designed to give some medical, nursing or convalescent care in an ethical and acceptable manner, but not strictly hospitals. In the statistics the two classifications are consolidated. A special list of hospitals for nervous and mental patients is presented separately in this issue.

KEY TO SYMBOLS AND ABBREVIATIONS

- * Approved for general internship, the fifth year in medicine, by the Council on Medical Education and Hospitals
- + Approved for residency in a specialty for graduates in medicine who have already had a general internship or its equivalent in practice
- o School of nursing accredited by state board of nurse examiners

- o Affiliated for nurse training on state accredited basis
- o Outpatient department
- D Dental service

The column headed "Type of Service" tells what diseases or conditions are treated in each institution, as follows:

Chil	Children's	Epl	Epileptic	Iso	Isolation	N&M	Nervous and mental
Conv	Convalescence and Rest	FFNT	Eye, Ear, Nose and Throat	Inst	Institutional	Ortho	Orthopedic
Chron	Chronic	Gen	General	Mater	Maternity	Sk & Ca	Skin and Cancer
Dr & Al	Drug and Alcohol	Indus	Industrial	MenDef	Mentally Deficient	TB	Tuberculosis

The column headed "Control" indicates for each institution the ownership, control, or auspices under which it is conducted, as follows:

Cy & Co	City and County	Indian	U S Indian Service	Part	Partnership
Fed	Federal	Indiv	Individually owned	USPHS	United States Public Health Service
Frat	Fraternal	Indus	Industrial	VetAd	Veterans Administration
Indep	Independent hospital association				

ALABAMA

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Albertville 2716—Marshall Co	Gen	Indiv	24	8	2	0	2	187	
Sand Mountain Infirmary	Gen	Indiv	54	8	2	6	2	240	
Alexander City 4519—Tallapoosa Co	Gen	Indiv	20	8	1				
Russell Hospital	Gen	Indep	25	10	2				
Andalusia 5154—Covington Co	Gen	County	66	80	4	21	5	111	
Andalusia City Hospital	Gen	County	50	17		0	0	338	
Covington County Hosp o	Gen	County	24	0	2	0	8	318	
Anniston 22,345—Calhoun Co	Gen	Indiv	10	4	2	0	2	163	
Gurner Hospital	Gen	Indiv	75	21	5	18	4	500	
Station Hospital	Gen	Indiv	150	60	12	29	10	3,239	
Atmore 3035—Escambia Co	Gen	Indiv	50	34		0	8	616	
Atmore General Hospital	Gen	Indiv	50	32		0	0	298	
Bellamy 317—Sumter Co	Gen	Indiv	400	256	40	134	24	8,387	
Bellamy Hospital	Gen	Indiv	100	78		0	8	257	
Bessemer 20721—Jefferson Co	Gen	Indiv	210	65	10	53	4	2,583	
Bessemer General Hospital	Gen	Indiv	113	68	12	60	5	3,117	
Birmingham 22078—Jefferson Co	Gen	Indiv	92	68	12	66	7	3,327	
Birmingham Baptist Hosp o	Gen	Church	15	2	1	0			
Children's Hospital	Chil	Indiv	30	13	2	0	3	480	
Hill Crest Sanitarium	N&M	Indiv	44	17	5	15	4	615	
Hillman Hospital	Gen	County	50	17	6				
Jefferson Sanatorium	TB	County	60	53	6	30	9	1,896	
Norwood Hospital	Gen	Indiv	64	78	0	28		2,385	
St Vincent's Hospital	Gen	Indiv	25	4	2			200	
South Highlands Infirm o	Gen	Indiv	50	25	6	8	2	825	
Brewton 2,318—Escambia Co	Gen	Indiv	50	12	6	12	2	436	
Brewton Memorial Hospital	Gen	Indiv	287	185	23	0	51	5,623	
Clanton 1847—Chilton Co	Gen	Indiv	1	5	3	0			
Central Alabama Hospital	Gen	Indiv	40	11	4			483	
Decatur 15503—Morgan Co	Gen	Indiv	40	14	6	5	4	622	
Beavercreek Society Hospital	Gen	Indiv	60	50	10	15	2	720	
Dothan 16040—Houston Co	Gen	Indiv	75	24	6	16	6	1,339	
Dr M S Davies Private Hospital	Gen	Indiv	14	3	1	0		171	
Fraser Ellis Hospital	Gen	Indiv	25	4	5	6	4	1,5	
Moody Hospital	Gen	Indiv	20	8	3	0	2	21	
Enterprise 3702—Coffee Co	Gen	Indiv	40	11	4			483	
Gilson Hospital	Gen	Indiv	40	14	6	5	4	622	
Lulaula 5705—Barbour Co	Gen	Indiv	60	50	10	15	2	720	
Britt Infirmary	Gen	Indiv	75	24	6	16	6	1,339	
Salter Hospital	Gen	Indiv	14	3	1	0		171	
Fairfield 11033—Jefferson Co	Gen	Indiv	25	4	5	6	4	1,5	
Employees Hospital of the Tennessee Coal Iron and Railroad Company	Gen	Indus	287	185	23	0	51	5,623	
Lafayette 1549—Bulfinch Co	Gen	Indiv	1	5	3	0			
Bay View Sanatorium	Gen	Indiv	40	11	4			483	
Florida 250—Covington Co	Gen	Indiv	40	14	6	5	4	622	
Young Infirmary and Lake View Hospital	Gen	Indiv	60	50	10	15	2	720	
Lorance 1177—Lauderdale Co	Gen	Indiv	75	24	6	16	6	1,339	
Flza Coffee Mill Hospital	Gen	Indiv	14	3	1	0		171	
Cadwell 2404—Towson Co	Gen	Indiv	25	4	5	6	4	1,5	
Lorance General Hospital	Gen	Indiv	20	8	3	0	2	21	
Holy Name of Jesus Hospital	Gen	Indiv	40	11	4			483	
Crenshaw 170—Blair Co	Gen	Indiv	40	14	6	5	4	622	
Crenshaw Hospital	Gen	Indiv	60	50	10	15	2	720	
Greenville 35—Butler Co	Gen	Indiv	75	24	6	16	6	1,339	
Sparks Hospital	Gen	Indiv	14	3	1	0		171	
Stalder Infirmary	Gen	Indiv	25	4	5	6	4	1,5	

ALABAMA—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Gurley 581—Madison Co	Gen	Indiv	17	5	2	0		30	
F O Williamson Hospital	Gen	City	70	19	5				
Huntsville 11554—Madison Co	Gen	Indiv	14	4	4	0	1		
Huntsville Hospital	Gen	Indiv	50	23	4	10	2	868	
Jackson 1828—Clarke Co	Gen	Indiv	15	5		0			
South Alabama Infirmary	Gen	Indiv	119	68	17	40	8	5,199	
Jasper 5,313—Walker Co	Gen	Indiv	54	48		0	1	29	
Walker County Hospital	Gen	Indiv	90	35	10	35	5	1,438	
Langdale, 510—Chambers Co	Gen	Indiv	100	40	12	32	7	1,665	
Langdale Hospital	Gen	Indiv	90	83		0	12	825	
Mobile 68202—Mobile Co	Gen	Indiv	40	10	12	16	4	1,219	
City Hospital	Gen	Indiv	60	44		0	2	47	
Mobile County Tuber Sanit	TB	Indiv	125	71	14	69	4	3,364	
Mobile Infirmary	Gen	Church	21	12		0	0	186	
Providence Infirmary	Gen	Church	1,500	1,200		0	3	402	
U S Marine Hospital	Gen	USPHS	30	8	0	6	1	309	
Montgomery 68079—Montgomery Co	Gen	Indiv	10	6	8	0	4		
Highland Park Sanatorium	Gen	Indiv	32	10	4	6	1	326	
Montgomery Tuber Sanat	TB	Indiv	20	8	2	0		100	
St Margaret's Hospital	Gen	Church	25	18	2	0	1	516	
Station Hospital	Gen	Army	65	21	0	7	1	1,223	
Mt Vernon 810—Mobile Co	Gen	Indiv	25	18	2	0	1	516	
Searcy Hospital (col)	Mental	State	65	21	0	7	1	1,223	
Opelika 6166—Lee Co	Gen	Indiv	52	30	15	6	11	1,014	
East Alabama Hospital	Gen	Indiv	25	18	2	0	1	516	
Ozark 3103—Dale Co	Gen	Indiv	65	21	0	7	1	1,223	
Grace Hospital	Gen	Indiv	32	10	4	6	1	326	
Roanoke 4373—Randolph Co	Gen	Indiv	20	8	2	0		100	
Kilgilt Sanatorium	Gen	Indiv	25	18	2	0	1	516	
Scottsboro 2,304—Jackson Co	Gen	Indiv	65	21	0	7	1	1,223	
Hodges Hospital	Gen	Indiv	25	18	2	0	1	516	
Selma, 18012—Dallas Co	Gen	Indiv	65	21	0	7	1	1,223	
Burwell Infirmary (col)	Gen	Indiv	25	18	2	0	1	516	
Goldsby King Mem Hospital	Gen	Indiv	65	21	0	7	1	1,223	
Good Samaritan Hospital (col)	Gen	Indiv	25	18	2	0	1	516	
Selma Baptist Hospital	Gen	Indiv	65	21	0	7	1	1,223	
Vaughan Memorial Hosp o	Gen	Indiv	25	18	2	0	1	516	
Shefield 6221—Colbert Co	Gen	Indiv	65	21	0	7	1	1,223	
Colbert County Hospital	Gen	Indiv	25	18	2	0	1	516	
Sylacauga 4115—Talladega Co	Gen	Indiv	65	21	0	7	1	1,223	
Drummond Fraser Hospital	Gen	Indiv	25	18	2	0	1	516	
Sylacauga Infirmary	Gen	Indiv	65	21	0	7	1	1,223	
Talladega 7590—Talladega Co	Gen	Indiv	25	18	2	0	1	516	
Citizens Hospital	Gen	Indiv	65	21	0	7	1	1,223	
Troy 6514—Pike Co	Gen	Indiv	25	18	2	0	1	516	
Beard Memorial Hospital	Gen	Indiv	65	21	0	7	1	1,223	
Edge Hospital	Gen	Indiv	25	18	2	0	1	516	
Tulalooza 20609—Tuscaloosa Co	Gen	Indiv	65	21	0	7	1	1,223	
Bryce Hospital	Gen	Indiv	25	18	2	0	1	516	
Druid City Hospital	Gen	Indiv	65	21	0	7	1	1,223	
Veterans Admin Hosp o	Gen	Indiv	25	18	2	0	1	516	
Tuskegee 3,314—Macon Co	Gen	Indiv	65	21	0	7	1	1,223	
Veterans Admin Hospital (col)	Gen	Indiv	25	18	2	0	1	516	
Tuskegee Institute 200—Macon Co	Gen	Indiv	65	21	0	7	1	1,223	
John A Andrew Memorial Hospital (col)	Gen	Indiv	25	18	2	0	1	516	

Key to symbols and abbreviations is at top of this page

ALABAMA—Continued

Related Institutions	Type of Service	Control	Beds, Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Alabama City, 8,544—I towah Co	TB	County	25	20	0	2	31		
I towah Co Tuber Sanat									
Altoona, 1,098—I towah Co									
Klein Hospital	Gen	Indiv	12	5	3	0	2	152	
Birmingham, 259,078—Jefferson Co									
Alabama Boys' Industrial School	Inst	State	70	9	0	1	1,027		
Children's Home Hospital (col)	Gen	Indep	17	0	2	0	2	428	
Miss Quinn's Nursing Home	Conv	Indep	10	5	0	2	95		
Salvation Army Home and Hospital	Mater	Church	50	40	30	0	1	120	
Demopolis, 4,037—Marengo Co									
Hand Bailey Hospital	Gen	Indiv	14	2	4	0			
East Tallapoosa, 2,040—Tallapoosa Co									
Community Hospital	Gen	Indep	18	4	1	0	2	128	
Flomaton, 915—Isciahville Co									
Flomaton Hospital	Gen	Indiv	12	7	4	0			
Mobile, 68,002—Mobile Co									
Mobile County Poor Asylum Hospital	Gen	County	20	16	0				
Monroeville, 1,355—Monroe Co									
Monroe Infirmary	Gen	Indiv	16	3	1	0	117		
Montevallo, 1,245—Shelby Co									
Peterson Hall	Inst	State	36	3	0	2	1,000		
Montgomery, 66,079—Montgomery Co									
Fraternal Hospital (col)	Gen	Indiv	75	11	12	11	2	408	
Kilby Prison Hospital	Inst	State	60	10	0	0	1,121		
Miriam Jackson Home	Inst	Church	21	3	0	0	406		
Mountain Creek, 375—Chilton Co									
Jefferson Manly Walker Soldiers Home	Inst	State	20	10	0	0	3		
Selma, 18,012—Dallas Co									
Alabama Methodist Orphanage Hospital	Inst	Church	10	5	0	1	296		
Talladega, 7,596—Talladega Co									
Goodnow Hospital (col)	Inst	Indep	20	1	1	0	2	83	
Tuscaloosa, 20,679—Tuscaloosa Co									
Partlow State School	MenDef	State	536	540	0	2	40		
Wetumpka, 2,377—Fluore Co									
State Convict Tuber Hosp	TB	State	150	72	0	0	211		

Summary for Alabama

	Number	Beds	Average Patients	Patients Admitted
Hospitals and sanatoriums	71	9,681	7,075	72,268
Related institutions	21	1,171	821	6,035
Totals	92	10,852	7,896	78,303
Refused registration	4	125		

ARIZONA

Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Ajo, 3,050—Pima Co									
New Cornelia Miner Hosp	Gen	Indus	30	8	0	0	2	265	
Bisbee, 8,023—Cochise Co									
Copper Queen Hospital	Gen	Indus	35	17	6	0	5	805	
Douglas, 9,828—Cochise Co									
Cochise County Hospital	Gen	County	90	67	6	0	4	472	
Station Hospital	Gen	Army	15	5	0	0	107		
Florence, 1,318—Pinal Co									
Pinal County Hospital	Gen	County	20	10	1	0			
Ft Defiance, 30—Apache Co									
Southern Navajo General Hospital	Gen	Indian	100	81	4	0	9	1,441	
Southern Navajo Sanat	TB	Indian	26	16	0	2	123		
Ft Huachuca, 1,214—Cochise Co									
Station Hospital	Gen	Army	40	14	2	0	0	616	
Ganado, 34—Apache Co									
Sage Memorial Hospital	Gen	Church	75	43	15	11	0	668	
Globe, 7,157—Gila Co									
Gila County Hospital	Gen	County	55	56	5	0	0	588	
Jerome, 4,912—Yavapai Co									
United Verde Copper Company Hospital	Gen	Indus	52	10	4	1	0	719	
Keams Canyon, 36—Navajo Co									
Hopi Hospital	Gen	Indian	40	20	5	0	5	548	
Kingman, 2,050—Mohave Co									
Mohave County Hospital	Gen	County	30	10	5	0	4	204	
Leupp, 58—Coconino Co									
Leupp School and Agency Hospital	Gen	Indian	50	13	1	0	3	514	
Mesa, 3,711—Maricopa Co									
South Side District Hospital	Gen	Indep	25	0	1	0	2	475	
Miami, 7,699—Gila Co									
Miami Inspiration Hospital	Gen	Indus	40	12	4	0	1	499	
Morenci, 0,175—Greenlee Co									
Phelps Dodge Hospital	Gen	Indus	18	3	3	0	2	211	
Nogales, 0,006—Santa Cruz Co									
St Joseph's Hospital	Gen	Church	25	5	4	0	165		
Station Hospital	Gen	Army	50	10	0	0	318		
Phoenix, 48,118—Maricopa Co									
Arizona Sanatorium	TB	Indiv	45	15	0	0	21		
Arizona State Hospital	Mental	State	900	851	2	0	2	272	
Booker T Washington Memorial Hospital and Sanat (col)	Gen	Indiv	25	8	8	0			
Good Samaritan Hospital	Gen	Church	130	68	20	42	8	2,493	
Maricopa Co Tuber Hosp	TB	County	37	38	0				
Phoenix Indian Hospital	Gen	Indian	60	21	3	0	5	1,168	
Phoenix Indian Sanatorium	TB	Indian	130	111	0	0	203		
Phoenix Sanatorium	TB	Indiv	75	20	0	1	20		
St Joseph's Hospital	Gen	Church	168	95	16	53	8	4,057	

ARIZONA—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Prescott, 5,517—Yavapai Co									
Mercy Hospital	Gen	Church	32	0	8	0	6	370	
Panaset, 1,111—Sanatorium	TB	Indiv	35	12	0	2	30		
Raj, 2,450—Pinal Co									
Ray Hospital	Gen	Indus	20	7	4	0	4	258	
Suenon, 315—Pinal Co									
Pinal Indian Hospital	Gen	Indian	50	29	15	0	5	798	
Safford, 1,706—Graham Co									
Morris Squibb Hospital	Gen	Indiv	20	5	3	0	2	183	
San Carlos, 48—Gila Co									
San Carlos Indian Hosp	Gen	Indian	30	13	3	0	3	489	
Sells, 61—Pima Co									
Indian Oasis Hospital	Gen	Indian	45	30	2	0	4	345	
Superior, 2,525—Pinal Co									
Magna Hospital	Gen	Indus	15	3	4	0	3	1,107	
Tuba City, 100—Coconino Co									
Western Navajo Indian School Hospital	Gen	Indian	50	25	1	0	4	445	
Tucson, 32,566—Pima Co									
Barfield Sanatorium	TB	Indiv	32	10	0	4	33		
Desert Sanatorium and Institute of Research	Gen	Indep	80	35	0	17	221		
St Luke's in the Desert Sanatorium	TB	Church	55	22	0	1	48		
St Mary's Hos and Sanat	Gen, TB	Church	160	85	15	45	10	1,918	
Southern Methodist Hospital and Sanatorium	Gen	Church	83	23	12	0	10	583	
Southern Pacific Sanatorium	TB	Indus	84	55	0	7	90		
Veterans Admin Hospital	TB	VetAd	358	280	0	42	628		
Valentine, 168—Mohave Co									
Truston Canon Indian Hosp	Gen	Indian	16	4	0	2	174		
Whipple—Yavapai Co									
Veterans Admin Hospital	Gen	VetAd	600	325	0	54	1,190		
Whitely, 52—Navajo Co									
Ft Apache Indian Hosp	Gen	Indian	60	35	6	0	3	578	
Williams, 2,166—Coconino Co									
Williams Hospital	Gen	Indiv	12	3	2	0	1	269	
Yuma, 4,892—Yuma Co									
Ft Yuma Indian Hospital	Gen	Indian	72	18	4	0	514		
Yuma County General Hosp	Gen	County	50	25	6	0	700		

Related Institutions

Chin Lee, 65—Apache Co	Gen	Indian	18	11	1	0	2	40
Chin Lee General Hospital								
Flagstaff, 3,891—Coconino Co								
Coconino County Hospital	Inst	County	18	13	0		112	
Mercy Hospital	Gen	Indiv	15	5	3	0	3	
Florence, 1,318—Pinal Co								
Arizona State Prison Hosp	Inst	State	30	12	0			
Ft Apache, 68—Navajo Co								
Theodore Roosevelt School Hospital	Gen	Indian	21	5	0			
Kayenta, 15—Navajo Co								
Kayenta Sanatorium	Gen	Indian	50	35	2	0	925	
McNary 114—Apache Co								
McNary Hospital	Gen	Indus	18	6	3	0		
Phoenix, 48,118—Maricopa Co								
Harrisholm	Conv	Indiv	7	5	0	2		
Helen Lee Sanatorium	TB	Indiv	8	0	0	1	14	
Maricopa County Farm	Inst	County	20	10	0			
Rancho Sanatorium	TB	Indiv	25	20	0		100	
St Luke's Home	TB	Church	75	44	0	4	94	
Shady Lawn Sanatorium	TB	Indiv	20	15	0			
Sunny Rest Sanatorium	TB	Indiv	20	10	0			
Prescott, 5,517—Yavapai Co								
Arizona Pioneers Home and Miners Hospital	Inst	State	20	6	0			
St Luke's in the Mountains	TB	Church	50	45	0			
Yavapai County Hospital	Inst	County	80	60	4	0	2	239
Tucson, 32,566—Pima Co								
Anson Rest Home	TB	Part	30	24	0	2	23	
Arizona State Plks Association Hospital	TB	Frat	40	New				
Clark's Rest Home	TB	Indiv	30	15	0	1		
Constock Hospital	TB	Indep	80	20	0	2	20	
Cottage Sanatorium	TB	Indiv	12	8	0			
Fairview Rest Manor	TB	Indiv	25	16	0	1		
Hillcrest Sanatorium	TB	Indiv	32	20	0			
Old Pueblo Sanatorium	TB	Indiv	10	12	0	2	18	
Pima County Hospital	Gen	County	40	36	0			
Reardon Sanatorium	TB	Indiv	16	10	0	4	24	
Wickenburg, 734—Maricopa Co								
Wickenburg Hospital	Gen	Indiv	11	4	3	0	1	111

Summary for Arizona

	Number	Beds	Average Patients	Patients Admitted
Hospitals and sanatoriums	50	4,255	2,022	28,450
Related institutions	27	751	473	2,185
Totals	77	5,016	3,395	31,115
Refused registration	2	54		

ARKANSAS

Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Alexander, 141—Pulaski Co									
McRae Tuber Sanat (col)	TB	State	32	31	0	4	55		
Arkadelphia, 3,380—Clark Co									
Townsend Hospital	Gen	Indiv	16	4	4	0	1	182	
Batesville, 4,484—Independence Co									
Dr Gray's Infirmary	Gen	Indiv	10	3	0	1	111		
Johnston Hospital	Surg	Part	15	3	0	1	250		

ARKANSAS—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Bauvite 2200—Saline Co									
Republie Mining & Manufac- turing Company Hospital	Gen	Indus	20	4	1	0			
Benton 3445—Saline Co	Gen	Indiv	18	5	2	0	2	198	
Blakely 8—Sanatorium									
Blytheville 10 098—Mississippi Co	Gen	Indiv	40	18	3				
Blytheville Hospital									
Camden 7273—Ouachita Co	Gen	Indep	20	8	9	0	3	609	
Camden Hospital									
Charleston 801—Franklin Co	Gen	Indiv	12	3		0	1		
Bollinger Hospital									
Clarksville, 3031—Johnson Co	Gen	Indep	10	4	2	0	1	300	
Johnson County Hospital									
Coaway 5,534—Faulkner Co	Gen	Indep	20	3	6	0	2	137	
Faulkner County Hospital									
Crossett 2811—Ashley Co	Gen	Indus	20	12	0	0	2	283	
Crossett Hospital									
DeQueen 2038—Sevier Co	Gen	Part	22	5	3	0	2	154	
DeQueen Hospital									
Dumas 1609—Desha Co	Gen	Indiv	22	3	3	0	2	75	
Dumas Hospital									
El Dorado 10421—Union Co									
Henry C Rosamond Memo- rial Hospital	Gen	Part	24	8	4	10	2	1030	
Warner Brown Hospital	Gen	Church	75	51	0	24	7	2007	
Fureka Springs 2270—Carroll Co	Gen	Indep	15	5	2	0	3	160	
Dan Sawyer Memorial Hosp									
Fayetteville 7394—Washington Co	Gen	City	50	23	0	19	1	1110	
Fayetteville City Hospital									
Ft Smith 31429—Sebastian Co	Gen	Church	100	53	15	30	0	2,011	
St Edward's Mercy Hosp	Gen	Indiv	50	14	5	0	0	040	
St John's Hospital	Gen	Indep	60	20	14	30	5	602	
Sparks Memorial Hospital									
Helena 8310—Phillips Co	Gen	Indep	38	12	5	0	0	630	
Helena Hospital									
Hope 0008—Hempstead Co	Gen	Indiv	22	5	3	0	3	256	
Josephine Hospital	Gen	Indep	20	4	3	0	2	200	
Julia Chester Hospital									
Hot Springs National Park 20238—Garland Co	Gen	Fed	108	87		0	17	603	
Army and Navy Gen Hosp	Gen	Frat	60	50	5	17	2	674	
Leo A Levi Mem Hosp	Gen	Indep	60	18	4	0	5	360	
Ozark Sanatorium	Gen	Church	144	50	0	20	7	1,365	
St Joseph's Hospital									
Woodmen of Union Hospital (col)	Gen	Frat	100	64	4				
Jonesboro 10390—Craighead Co	Gen	Church	100	60	8	30	8	1,634	
St Bernard's Hospital									
Juke Village 1,882—Chicot Co	Gen	Part	30	12	2	0	4	360	
Lake Village Infirmary									
Little Rock 81670—Pulaski Co	Chil	Indep	70	20		0	0	900	
Arkansas Children's Home and Hospital	Gen	Church	300	50	15	40	0	2,530	
Baptist State Hospital	Gen	Indiv	20	5	2	0	1	215	
Granite Mountain Hospital	Gen	City	123	63	12	18	0	2,300	
Little Rock Gen Hosp	Indus	Indus	120	41	0	8	1	577	
Missouri Pacific Hospital	Gen	Frat	30	18	4	0			
Mosale State Hosp (col)	Gen	County	220	174	10	18	3	1,440	
Pulaski County Hospital	Gen	Church	100	68	15	60	1	3,633	
St Vincent's Infirmary	Mental	State	3,401	3,319		0	0	1,464	
State Hospital for Nervous Diseases	Gen	Indep	44	13	0	0	11	047	
Trinity Hospital	Gen	Frat	32	15	2	2			
United Friends Hosp (col)									
Magnolia 3008—Columbia Co	Gen	Part	12	4		0		170	
Magnolia Sanatorium									
Monticello 3006—Drew Co	Gen	Indep	20	4		0	1	220	
Maek Wilson Hospital									
Morrilton 4043—Conway Co	Gen	Church	18	11	4	0		310	
St Anthony's Hospital									
Newport 447—Jackson Co	Surg	Part	10	4	2	0			
Newport Sanatorium									
North Little Rock 19418—Pulaski Co	Mental	Indiv	520	708		0	20	206	
Veterans Admin Hospital									
Paragould 5066—Greene Co	Gen	Indep	20	12	2	0	4	370	
Dickson Memorial Sanit	Gen	Indiv	20	10		0			
Paris 1234—Leflore Co	Gen	Indiv	20	10		0			
Dr Jewell's Infirmary									
Pine Bluff 20760—Jefferson Co	Gen	Church	70	16	6	0	11	872	
Davis Baptist Hospital	Gen	Indep	20	10	3	0			
United Links Hospital (col)	Gen	Indiv	40	18	3	12	2	671	
Frescott 603—Nevada Co									
Cora Donnell Ho pital	Gen	Indiv	10	3		0	0	100	
Ru. 6000—Pope Co	Gen	Indiv	10	3		0	0	100	
Hamby Eye Ear Nose and Throat Hospital	Gen	Indiv	10	3		0	0	100	
St Mary's Hospital	Gen	Indiv	10	3		0	0	100	
Searcy 3087—White Co	Gen	Indiv	20	9	1				
Wakarusa Sanatorium									
Shannon Springs 230—Benton Co	Gen	City	10	6	2	0	2	196	
Shannon Springs City Hosp									
State Sanatorium—Logan Co	TB	State	100	100		0	6	679	
Arkansas Tuberculosis Sanat									
Taylor 20—Columbia Co	Gen	Indiv	10	6		0		220	
Bertie Lee Horn Sanatorium									
Texarkana 1004—Miller Co	Gen	Church	70	20	10	17	9	102	
Michael Meagher Memorial Hospital	Indus	Indus	100	20		0	6	1,214	
St Louis Southwestern Hos- pital									
Related Institutions									
Leola 100—White Co	Gen	Indiv	20	6		0			
Shannon Ho pital									
Shannon (Warner P O)—Lincoln Co	State		14	12		0			
Arkansas State Penal Ho p	Int								
De Queen—Sevier Co	Gen	Indiv	10	4		0			
De Queen Ho pital									

ARKANSAS—Continued

Related Institutions	Type of Service	Control	Beds, Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Ft Smith 31,429—Sebastian Co	Inst	County	125	80		0			
Sebastian County Hospital									
Little Rock 81670—Pulaski Co	Inst	State	75	65		0			100
Arkansas Confederate Home									
Arkansas School for the Blind	Inst	State	12	2		0	1		40
Florence Crittenton Home	Water	Indep	44	2		0	0		40
Malvern 5115—Hot Spring Co									
Hot Spring County General Hospital	Gen	County	10	8	2	0			636
Newport 4547—Jackson Co	Gen	Indiv	6	2	2	0	0		102
Dr Gray's Sanatorium									
Rogers 3504—Benton Co	Gen	Indiv	8	2	2	0	1		86
Home Hospital	Gen	Indiv	10	2	2	0			73
Rogers Sanatorium									
Texarkana 10764—Miller Co	Gen	Indiv	16	4	2	4	1		146
Johnson Sanatorium (col)									
Tucker 219—Jefferson Co	Gen	Indiv	16	4	2	4	1		146
Arkansas State Penitentiary Hospital	Inst	State	20	14		0	0		
Summary for Arkansas									
Hospitals and sanatoriums	Number	Beds	Average Patients	Patients Admitted					
Related Institutions	14	877	203	1,548					
Totals	73	8,240	0,108	43,009					
Refused registration	7	172							

CALIFORNIA

Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Agnew 310—Santa Clara Co	Mental	State	2,084	2,267		0	0		850
Agnew State Hospital									
Ahwahnee 25—Madera Co									
Ahwahnee Tuberculosis Sanatorium	TB	County	108	98		0	11		92
Alameda 35033—Alameda Co									
Alameda Sanatorium on the South Shore	Gen	Indep	80	34	15	0			1,581
Albany 8500—Alameda Co	Gen	Indep	27	8	10	0	6		408
Humboldt Hospital									
Alcatraz, 171—San Francisco Co	Gen	Army	30	17		0	0		321
Station Hospital									
Alhambra 29472—Los Angeles Co	Gen	Indep	40	14	10	0	12		882
Alhambra Hospital									
Angel Island 406—Marin Co	Gen	Army	75	14		0	0		738
Station Hospital									
Antioch 3583—Contra Costa Co	Gen	Indiv	15	5	4	0	2		160
Antioch Hospital									
Arcaata 1700—Humboldt Co	Gen	Church	22	8	4	0	4		342
Trinity Hospital									
Arlington 1550—Riverside Co	Gen	County	300	240	10	0	40		2,163
Riverside County Hosp									
Artesia 3501—Los Angeles Co	Gen	Indiv	20	0	4	0	4		160
Artesia Hospital									
Auberry 183—Fresno Co	TB	County	66	66		0	6		83
Wish Lab Sanatorium									
Auburn 2601—Placer Co	Gen	Part	20	11	3	0			
Highlands Sanatorium									
Bakersfield 26010—Kern Co	Gen	Indiv	40	6	5	0	2		2,012
Bakersfield Emergency Hosp	Gen	County	300	289	10	0	4		4,702
Kern General Hospital	Gen	Church	72	40	12	30	2		1,848
Merced Hospital	Gen	Indep	40	20	6	0	8		1,071
San Joaquin Hospital									
Banning 2752—Riverside Co	Gen	Indiv	30	8		0	2		36
Banning Hosp and Sanat									
Southern Sierra Sanat for Diseases of the Throat and Lungs	TB	Indiv	35	25		0	5		35
Bell 7084—Los Angeles Co	Gen	Part	26	0	11	0	2		60
Gage Hospital									
Belmont 984—San Mateo Co	TB	Indep	100	100		0	7		120
California Sanatorium	N&M	Indep	20	18		0	0		31
Twin Peaks Sanatorium									
Berkeley 82100—Alameda Co	Gen	Indep	100	61	36	35	30		2,272
Alta Bates Hospital	Gen	Indiv	90	37	12	0			
Berkeley General Hospital	Gen	State	100	27		0	27		1,730
E V Cowell Mem Hosp									
Brawley 10439—Imperial Co	Gen	Indiv	14	9	3	0			
Brawley Community Hosp									
Burbank 16602—Los Angeles Co	Gen	Indiv	36	15	8	0	7		488
Burbank Hospital									
Carmel 2260—Monterey Co	Gen	Indiv	13	9		0	4		266
Carmel Hospital									
Grace Deere Velle Metabolic Clinic	Chroa	Indep	20	5		0	3		187
Chico 7061—Butte Co	Gen	Indiv	32	12	6	0	6		650
Finch Hospital									
Clovis 1,316—Fresno Co	Gen	Indiv	11	8	2	0	2		2,520
McMurry Sanatorium									
Colfax 912—Placer Co	(Unit of Colfax School for the Tuberculous)								
Bushnell Sanatorium	(Unit of Colfax School for the Tuberculous)								
Colfax Hospital									
Colfax School for the Tu- berculous	TB	Indiv	117	76		0			209
Housekeeper, Cottage Col- ony	(Unit of Colfax School for the Tuberculous)								
Kathlamet Sanatorium	(Unit of Colfax School for the Tuberculous)								
Colusa 2116—Colusa Co	Gen	County	24	13	5	0	6		401
Colusa County Mem Hosp									

CALIFORNIA—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Compton, 12,510—Los Angeles Co	N&M	Indep	174	79	0	0	0	201	
Compton Sanitarium	Gen	Indep	10	25	10	0	0	504	
Coronado, 5,425—San Diego Co	Gen	Army	16	5	0	0	0	223	
Station Hospital	Gen	Part	50	20	8	0	10	047	
Covina, 2,774—Los Angeles Co	Gen	Indep	18	5	4	0	3	700	
Covina Hospital	Gen	Indep	50	12	17	0	6	309	
Crescent City, 1,720—Del Norte Co	Gen	Part	15	4	4	0	2		
Knapp Hospital	Gen	Indep	140	149	0	6	61		
Culver City, 5,609—Los Angeles Co	Gen	Indep	70	6	7	0	2	200	
University Hospital	Gen	Indep	104	79	40	0	1	191	
Dorris 762—Stockton Co	Gen	Part	42	26	8	0			
Dorris Hospital	Gen	County	100	89	10	0	11	1,476	
Duarte, 620—Los Angeles Co	Gen	Church	65	52	1	0	6	170	
Sanatorium of the Jewish Consumptive Relief Ass'n	Gen	Church	63	22	12	0	9	037	
Dunsinuir, 2,610—Stockton Co	Gen	Indep	26	6	5	0	4	195	
Dunsinuir Hosp and Sanit	Gen	County	500	463	24	46	77	6,040	
El Monte 1,470—Los Angeles Co	Gen	Indep	125	45	12	48	8	2,025	
Ruth Home	Mater	Indep	15	6	4	0	3	850	
Eureka, 15,752—Humboldt Co	Gen	Indep	75	37	14	0	11	1,511	
General Hospital	Gen	Indiv	25	11	6	0	5	308	
Humboldt County Hospital	Gen	County	28	7	6	0		475	
Humboldt County School for the Tuberculous	Gen	Church	26	8	6	0	5	512	
St. Joseph Hospital	Gen	Church	250	138	24	60	31	2,355	
St. Joseph Hospital	Gen	Indep	70	35	16	0	17	1,460	
St. Joseph Hospital	Gen	Indiv	20	10	4	0	4	260	
St. Joseph Hospital	Gen	Indiv	30	9	8	0		294	
St. Joseph Hospital	Gen	County	95	81	10	0	10	007	
St. Joseph Hospital	Gen	Church	18	20	6	0	7	120	
St. Joseph Hospital	Gen	Indiv	14	5	5	0			
St. Joseph Hospital	Gen	County	14	6	7	0	9	236	
St. Joseph Hospital	Gen	Indep	17	0	7	0	7	333	
St. Joseph Hospital	Gen	Indus	14	2	3	0	1	67	
St. Joseph Hospital	Gen	County	15	5	7	0	7	250	
St. Joseph Hospital	Gen	Indiv	22	9	18	0	4	440	
St. Joseph Hospital	Gen	Indiv	33	22	5	0	3	425	
St. Joseph Hospital	Gen	Indep	31	20	10	0	0	1,010	
St. Joseph Hospital	Gen	Mental State	3,192	3,060	0	0	0	775	
St. Joseph Hospital	Gen	Indiv	20	10	4	0	4		
St. Joseph Hospital	Gen	Indiv	20	14	6	0	6	500	
St. Joseph Hospital	Gen	County	75	73	0	5	75		
St. Joseph Hospital	Gen	Indep	60	31	0	8	191		
St. Joseph Hospital	Gen	Indep	70	51	0	9	163		
St. Joseph Hospital	Gen	Indiv	10	4	2	0	3	154	
St. Joseph Hospital	Gen	County	186	176	6	10	203		
St. Joseph Hospital	Gen	Cy&Co	30	12	4	0	9	20	
St. Joseph Hospital	Gen	Indep	100	83	0	26	111		
St. Joseph Hospital	Gen	Indiv	12	5	7	6			
St. Joseph Hospital	Gen	VetAd	318	283	0	37	400		
St. Joseph Hospital	Gen	Indiv	15	3	4	0	2	210	
St. Joseph Hospital	Gen	Indep	15	6	4	6	3	300	
St. Joseph Hospital	Gen	Church	112	68	12	77	27	1,802	
St. Joseph Hospital	Gen	Indiv	26	15	0	6	474		
St. Joseph Hospital	Gen	Indep	100	57	26	6	33	7,075	
St. Joseph Hospital	Gen	Church	50	14	10	0	12	1,645	
St. Joseph Hospital	Gen	Indep	260	104	40	72	52	6,012	
St. Joseph Hospital	Gen	Indep	100	83	12	4	97		
St. Joseph Hospital	Gen	Church	270	209	28	125	73	8,647	
St. Joseph Hospital	Gen	Indep	200	168	40	0	120	4,932	
St. Joseph Hospital	Gen	Indep	180	143	74	30	3	523	
St. Joseph Hospital	Gen	Indep	18	4	4	0			

CALIFORNIA—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Fye and Farr Hospital	Gen	Indep	21	35	20	0	15	2,300	
French Hospital	Gen	Indiv	80	20	6	0	11	1,163	
Golden State Hospital	Gen	Indiv	240	153	65	0	83	5,702	
Hollywood Clara Barton Memorial Hospital	Gen	Church	380	199	45	01	56	5,408	
Hospital of the Good Samaritan	Gen	Church	29	17	9	0	5	974	
Lincoln Hospital	Gen	County	1,494	1,555	40	375	368	33,699	
Los Angeles County General Hospital (Unit No 1) ** + 000	Gen	County	21	8	21	0	3	261	
Los Angeles County Psychopathic Hospital (Unit No 1)	Mater	Indep	28	14	30	10	2	471	
Los Angeles Lying In Hosp	Gen	Indiv	20	18	0	3	120		
Los Angeles Maternity Cottage	Mater	Indiv	200	106	45	21	4	368	
Los Angeles Sanitarium	Gen	Indiv	85	70	0	0	1,389		
Methodist Hospital of Southern California	Gen	Indiv	15	10	3	0	6	450	
Orthopaedic Hosp School	Gen	Church	133	167	20	68	15	2,240	
Orthopaedic Hosp	Gen	Church	208	130	40	89	22	4,101	
Queen of Angels Hospital	Gen	Indus	150	121	0	30	2,412		
St. Vincent's Hospital	Gen	Indiv	35	12	3	0	3	140	
Santa Fe Coast Lines Hospital	Gen	Indiv	50	12	0	4	129		
Southern California Japan Hospital	Gen	Indiv	26	8	8	0	4	390	
Southern California Sanit	Gen	Indiv	11	10	6	0	4	420	
Southwest General Hospital	Gen	Church	112	81	22	71	46	3,150	
Terry Sanitarium Hospital	Gen	Indiv	15	6	4	0	3	850	
White Memorial Hosp ** + 000	Gen	Indiv	60	43	0	6	60		
Los Banos, 1,875—Merced Co	Gen	Indiv	42	32	5	0	3	713	
Los Banos Hospital	Gen	Indiv	19	8	5	0	3	392	
Los Gatos, 3,108—Santa Clara Co	Gen	Indiv	44	42	0	3	61		
Oak's Sanitarium	Gen	County	210	161	12	0	17	1,607	
Madera, 4,605—Madera Co	Gen	Indiv	30	12	0	0	7	533	
Madera County Hospital	Gen	Indiv	26	18	0	0	6	670	
Madera Sanitarium	Gen	Indiv	32	4	0	0	3	316	
Manor, —Marin Co	Gen	Indiv	30	20	7	0			
Marine, 6,569—Contra Costa Co	Gen	Indiv	30	20	5	0	882		
Marine Hospital	Gen	Indiv	34	18	8	0	10	936	
Marine Hospital	Gen	Church	21	10	0	0	9		
Marine Hospital	Gen	County	205	158	15	0	20	1,608	
Marine Hospital	Gen	Indiv	14	4	4	0	3	245	
Marine Hospital	Gen	Indiv	100	18	4	0	7	750	
Marine Hospital	Gen	Indiv	54	21	1	0	0	816	
Marine Hospital	Gen	Indiv	83	16	8	0	8	775	
Marine Hospital	Gen	Indiv	170	140	0	8	197		
Marine Hospital	Gen	Indiv	20	12	6	0			
Marine Hospital	Gen	Indiv	12	5	0	2	225		
Marine Hospital	Gen	Church	110	66	7				
Marine Hospital	Gen	Indiv	11	4	3	0	3	222	
Marine Hospital	Gen	Indiv	2,140	2,100	0	1	891		
Marine Hospital	Gen	Indiv	95	29	13	12	2,188		
Marine Hospital	Gen	Indiv	90	46	22	0	28	2,046	
Marine Hospital	Gen	County	378	278	17	126	46	9,109	
Marine Hospital	Gen	Indiv	128	66	32	0	43	2,803	
Marine Hospital	Gen	Church	212	74	30	55	17	2,713	
Marine Hospital	Gen	Indiv	55	73	15	0			
Marine Hospital	Gen	Indiv	150	97	18	93	18	3,700	
Marine Hospital	Gen	Indiv	071	017	0	94	628		
Marine Hospital	Gen	County	202	202	10	46	10	2,943	
Marine Hospital	Gen	Church	100	40	21	10	8	1,346	
Marine Hospital	Gen	Church	50	13	12	0		577	
Marine Hospital	Gen	Indiv	100	0	5	10			
Marine Hospital	Gen	Indiv	85	78	15	0	17	2,038	
Marine Hospital	Gen	Indiv	1,010	933	0	50	872		
Marine Hospital	Gen	Indiv	80	67	0	7	231		
Marine Hospital	Gen	Indiv	187	123	24	83	40	4,621	
Marine Hospital	Gen	Indiv	14	0	14	0	5	304	
Marine Hospital	Gen	Indiv	3,538	3,481	0	2	1,065		
Marine Hospital	Gen	Indiv	21	8	3	0	5	560	

Key to symbols and abbreviations is on page 911

CALIFORNIA—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Pomona 20,804—Los Angeles Co Pomona Valley Community Hospital	Gen	Indep	82	20	21	0	18	1	2,243
Portola 1 012—Plumas Co Western Pacific Railway Hos- pital	Gen	Indus	35	17	3	0	4		290
Red Bluff, 3 517—Tehama Co St Elizabeth's Mercy Hosp	Gen	Church	25	10	5	0	3		400
Tehama County Hospital	Gen	County	65	47		0	1		237
Redding 4 188—Shasta Co Dozier Sanitarium	Gen	Indiv	20	4	3	0	3		173
St Caroline Sanitarium	Gen	Indep	19	0	4	0	4		302
Redwood City, 8 002—San Mateo Co Hassler Health Home	TB	Cy & Co	50	44		0	4		79
Canyon Sanatorium	TB	Indiv	75	45		0	3		78
Richmond, 20 073—Contra Costa Co Hospital Richmond	Gen	Indep	50	13	14	0	4		60
Cottage Hospital	Gen	Indiv	20	14	7	0	6		111
Riverside, 29,696—Riverside Co Riverside Community Hos- pital	Gen	Indep	60	27	18	23	15		1,743
Sherman Institute Hospital	Gen	Indian	60	24		0	4		1,038
Rosemead, 2,717—Los Angeles Co Alhambra Sanatorium	N & M	Indep	12	3		0	3		27
Ross 1,355—Marin Co Ross General Hospital	Gen	Indep	60	40	8	0	10		804
Sacramento, 93 750—Sacramento Co Walter Mierleordine Hosp	Gen	Church	174	10	27	44	15		2,261
Sacramento Hospital	Gen	County	420	440	24	23	57		8,947
Sutter Hospital	Gen	Indep	175	118	30	0	65		4,441
Salinas 10 233—Monterey Co Park Lane Hospital	Gen	Indiv	28	18	0	0	4		785
Salinas Valley Hospital	Gen	Indiv	21	10	9	0	4		657
San Bernardino 37 481—San Bernardino Co St Bernardine's Hospital	Gen	Church	125	24	12	0	15		3,167
San Bernardino General Hos- pital	Gen	County	200	263	16	45	93		840
San Clemente 647—Orange Co San Clemente Community Hospital	Gen	Indiv	38	15	20	0	0		2,0
San Diego 147 005—San Diego Co Gracewood General Hospital	Gen	Indiv	30	12	12	0			641
Merced Hospital	Gen	Church	285	151	40	93	30		0,602
San Diego County General Hospital	Gen	County	640	472	32	46	47		6,809
Scripps Memorial Hospital	Gen	Indep	60	18	0	0	12		47
Scripps Metahollic Clinic	Metab	Indiv	30	20		0	10		478
U S Naval Hospital	Gen	Navy	964	838			47		285
San Fernando 7 567—Los Angeles Co San Fernando Hospital	Gen	Indiv	12	0	5	0	4		284
Veterans Admin Hospital	TB	Vet Ad	230	222		0	25		707
San Francisco 634 394—San Francisco Co Chinese Hospital	Gen	Indep	57	27	8	0	8		3,730
Dante Sanatorium	Gen	Indep	135	65	10	0			2,446
Franklin Hospital	Gen	Frat	225	129	10	72	18		0,001
French Hospital	Gen	Frat	220	170	14	105	20		3,409
Greens Eye Hospital	Eye	Part	30	15					3,007
Hospital for Children	Gen	Indep	256	169	44	80	18		71
Letterman General Hosp	Gen	Army	1 030	933	10	0	60		6,533
Mary's Help Hospital	Gen	Church	130	93	30	65	10		4,474
Mt Zion Hospital	Gen	Indep	172	112	26	82	10		2,406
Park Sanitarium	N & M	Indep	35	20		0	1		280
St Elizabeth's Infant Hosp	Mater	Church	65	50	20	0	7		1,002
St Francis Hospital	Gen	Indep	300	190	60	111	32		1,044
St Joseph's Hospital	Gen	Church	215	145	28	60	10		2,782
St Luke's Hospital	Gen	Church	200	134	25	111	25		0,070
St Mary's Hospital	Gen	Church	286	180	40	118	0		1,122
San Francisco Hosp	Gen	Cy & Co	1 472	1 032	35	122	119		60
Shriners Hospital for Crip- pled Children	Ortho	Frat	60	60		6	0		61
Southern Pacific General Hospital	Indus	Indus	400	219		0	61		7,040
Stanford University Hospi- tal (Including Lane Hos- pital)	Gen	Indep	71	164	27	171	41		3,044
Sutter Hospital	Gen	Part	60	46	12	0	18		3,044
U S Marine Hospital	Gen	USPHS	472	325		0	51		5,329
Univ of Calif Hosp	Gen	State	255	162	32	139	38		7,040
Sanitarium 415—Napa Co St Helena Sanit and Hosp	Gen	Church	140	69	6	32	2		1,471
San Jacinto 1 746—Riverside Co Soboba Indian Hospital	Gen	Indian	30	24	3	0			201
San Jose 57 651—Santa Clara Co Alum Rock Sanatorium	TB	Indep	50	21		0	2		191
O'Connor Sanitarium	Gen	Church	100	69	20	45	8		3,240
San Jose Hospital	Gen	Indep	110	69	25	51	10		5,073
Santa Clara County Hospi- tal	Gen	County	472	405	30	60	48		4,287
Santa Clara Sanatorium	TB	County	95	95		0			54
San Luis Obispo 8 706—San Luis Obispo Co Mountain View Hospital	Gen	Indiv	25		4	0	4		299
San Luis Obispo Gen Hos- pital	Gen	County	57	30	8	0	9		1,054
San Luis Sanitarium	Gen	Part	30	14	6	0	7		287
San Mateo 13 444—San Mateo Co Community Hospital of San Mateo County	Gen	County	150	97	9	0	23		1,224
Mills Memorial Hospital	Gen	Church	125	50	25	0	21		2,151
San Pedro—Los Angeles Co San Pedro Hospital	Gen	Indep	91	64	22	0	21		2,106
Station Hospital	Gen	Army	1	1	0	0	0		144
U S Ship Relief Hospital	Gen	Navy	267	126		0	15		2,76
San Rafael 8 02—Marin Co San Rafael Cottage Hospi- tal	Gen	Indiv	25	15	11	0	10		700
Santa Ana 30 222—Orange Co Santa Ana Valley Hospital	Gen	Indep	70	22	20	0	12		54
Santa Barbara 1 113—Santa Barbara Co St Francis Hospital	Gen	Church	85	42	15	25	15		1,004

CALIFORNIA—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Santa Barbara Cottage Hos- pital	Gen	Indep	20	121	32	07	2		4,103
Santa Barbara Gen Hosp	Gen	County	215	104	10	0	25		1,337
Santa Cruz 14,395—Santa Cruz Co Hanly Hospital	Gen	Indiv	31	10	10	0	5		508
Santa Monica 37,146—Los Angeles Co St Catherine's Hospital	Gen	Part	65	0	10	0			100
Santa Monica Hospital	Gen	Indep	94	58	12	0	20		1,115
Wishire Hospital	Gen	Indep	31	10	10	0			
Santa Rosa 10 636—Sonoma Co General Hospital	Gen	Indiv	30	10	8	0	5		687
Mary Jesse Hospital	Gen	Indiv	15	9	3	0	4		320
Seolia 2 024—Humboldt Co Seolia Hospital	Gen	Indus	52	13	4	0	3		410
Selma, 1 047—Fresno Co Selma Sanitarium	Gen	Indep	16	10	3	0	4		620
Sonoma, 2 258—Tulumbine Co Sierra Hospital	Gen	Indiv	26	8	4	0	3		230
Sonoma Hospital	Gen	Indiv	18	9	2	0			
South Gate 19 632—Los Angeles Co Suburban Hospital	Gen	Indep	40	15	18	0	10		649
South San Francisco 6 193—San Mateo Co South San Francisco Hosp	Gen	Indep	92	5	6	0	5		447
Spadra 59—Los Angeles Co State Narcotic Hospital	Drug	State	122	85		0	2		
Springville—Tulare Co Tulare-Kings County Joint Tuberculosis Hospital	TB	County	90	84		0	0		78
Stockton 47 003—San Joaquin Co Dameron Hospital	Gen	Indep	78	45	12	39	0		2,110
St Joseph's Home and Hos- pital	Gen	Church	125	60	15	48	14		2,152
Stockton State Hospital	Mental	State	3,338	3	405		0		1,697
Sunland—Los Angeles Co Sunland Sanatorium	TB	Indiv	50	48		0	4		130
Susanville 1 358—Lassen Co Riverside Hospital	Gen	Indiv	50	9	0	0	0		412
Talmage 29—Mendocino Co Mendocino State Hospital	Mental	State	2 350	2,000		0	2		500
Torrance 7 271—Los Angeles Co Jared Sidney Torrance Me- morial Hospital	Gen	Indep	40	25	12	0	11		928
Trona 775—San Bernardino Co Trona Hospital	Gen	Indus	10	2	1	0	3		124
Tulare 0 207—Tulare Co Bellevue Hospital	Gen	Indiv	20	4	3	0	3		125
Tulare County General Hos- pital	Gen	County	69	47	0	0	12		1,168
Tulare Hospital	Gen	Indiv	18	5	4	0	4		240
Turlock 4 270—Stanislaus Co Fmanuel Hospital	Gen	Church	42	20	8	12	3		685
Lillian Collins Hospital	Gen	Indiv	15	3	8	0	3		102
Ventura, 11 432—Ventura Co Foster Memorial Hospital	Gen	Indep	53	20	13	0	10		1,223
Ventura County Hospital	Gen	County	177	134	8	0	18		1,770
Vincburg 164—Sonoma Co Burnside Hospital	Gen	Indiv	15	0	2	0	2		1,600
Visalia 7 263—Tulare Co Kaweah Hospital	Gen	Indep	30	12	4	0	6		845
Watsonville 8 344—Santa Cruz Co Watsonville Hospital	Gen	Indiv	23	18	5	0	8		830
Weed, 4 227—Siskiyou Co Weed Hospital	Gen	Indiv	14	6	3	0	4		204
Welmar 32—Placer Co Welmar Joint Sanatorium	TB	Counties	444	250		0	10		388
Westwood 4 062—Lassen Co Westwood Hospital	Gen	Indiv	100	8	11	0	4		140
Willits 1 424—Mendocino Co Frank R Howard Memorial Hospital	Gen	Indep	10	8	1	0	3		359
Woodland 5 542—Yolo Co Woodland Clinic Hospital	Gen	Indep	102	34	10	0	14		1,509
Yosemite National Park 200—Mariposa Co W B Lewis Hospital	Gen	Fed	13	5	2	0	4		219
Yreka 2 126—Siskiyou Co Siskiyou County Gen Hosp	Gen	County	50	18	5	0	8		602
Yuba City 3 605—Butter Co Yuba City General Hospital	Gen	Part	15	7	3	0	4		472
Related Institutions									
Alta Iona 115—San Bernardino Co Our Lady of Lourdes Sanat	TB	Indiv	25	15		0	1		30
Alturas 2 738—Modoc Co Modoc County Hospital	Inst	County	30	7	2	0	2		187
Artesia 3 891—Los Angeles Co Dr Hansen's Sanitarium	N & M	Indiv	25	19		0			
Auburn 2 661—Placer Co Placer County Hospital	Gen	County	58	91	2	0			
Azu 4 505—Los Angeles Co Children's Open Air Health Camp	TB	Indep	100	100		0	5		360
Physiotherapy Institute and Rural Rest Home	Conv	Indep	25	2		0	4		120
Bakersfield 26 015—Kern Co R B Rees Hospital	Surg	Indiv	16	4		0			
Frinity Hospital	Gen	Indiv	20	5		0			
Balmont 5 54—San Mateo Co Chas Howard Foundation	TB	Indep	20	18		0			94
Reed Sanitarium	N & M	Part	25	New		0	4		
Barkley 2 169—Alameda Co California State Schools for the Deaf and Blind	Inst	State	22	5		0	1		246
Blythe 1 606—Riverside Co Frank Luke Memorial Hosp	Gen	Indep	7	3	4	0	1		126
Call toka 1 000—Napa Co Call toka Convalescent Home	TB	Indiv	15	10		0	1		8

CALIFORNIA—Continued

Related Institutions	Type of Service	Control	Beds, Rated	Capacity	Average Patients	Basinsets	Student Nurses	RNs for Nursing	Patients Admitted
ulu Vista, 3,869—San Diego Co	Gen	Indep	40	28	0	2			
deNubb Hospital and Sanli Gen	Gen	Indep	24	5	0	1	330		
Sharenton College Infirmary Inst	Inst	Indep	24	5	0	1	330		
allinga, 2,551—Fresno Co	Gen	Indlv	20	5	2	0	2	16	
San Joaquin Hospital	Gen	Indlv	15	10	0		25		
Max, 912—Placer Co	TB	Indlv	40	14	0	2	52		
Brown's Convalescent Home	TB	Indlv	52	41	2	0	210		
Summit Camp and Pre	TB	Indlv	10	3	4	0	1	14	
ventorium	TB	Indlv	12	7	3	0	2	24	
lusa, 2,116—Colusa Co	Inst	County	16	6	5	0	254		
Colusa County Hospital	Gen	Indlv	40	37	0	1	84		
rona, 7,018—Riverside Co	Inst	County	50	40	0	1			
rona Hospital	Gen	Part	9	5	2	0			
ronado, 5,425—San Diego Co	Gen	Indlv	10	5	3	0	2		
ronado Hospital	Gen	Indlv	6	1	3	0	2		
escent City, 1,720—Del Norte Co	Gen	Indlv	20	New	8	0	4		
Del Norte County Hospital	Gen	County	2,471	2,479	0	8	111		
iver City, 5,669—Los Angeles Co	N&M	Indlv	10	5	0	2	129		
St Erne Sanitarium	Inst	Frat	5	3	2	0	102		
olo, 519—Alameda Co	Gen	Indlv	25	23	0				
Mason's Home Hospital	Gen	Indlv	10	3	5	0	3	12	
luno, 2,612—Kern Co	Gen	Indlv	0	1	1	0	1	4	
Delano Emergency Hospital	Gen	Indlv	30	18	0				
ubm, 2,968—Tulare Co	Gen	Indlv	44	43	0	1	7		
Shuba Hospital	Gen	Indlv	8	6	2	0	146		
Cajon, 1,050—San Diego Co	Gen	Part	28	18	0	3	7		
l Cajon Hospital	Gen	Part	4	1	1	0	11		
Centro, 8,414—Imperial Co	Gen	Part	14	6	0	7			
la Solana Hospital	Gen	Part	15	8	0	1	20		
ridge, 16—Sonoma Co	Mental State	County	7	3	4	0	1	82	
sonoma State Home	Gen	Indlv	20	16	0	1	31		
reka 15 752—Humboldt Co	Gen	Indlv	15	6	0	0			
Humboldt County Isolation	Gen	Indlv	15	6	0	0			
Hospital	Gen	Indlv	15	6	0	0			
owler, 1,171—Fresno Co	Gen	Indlv	15	6	0	0			
owler Sanitarium	Gen	Indlv	15	6	0	0			
ndick, 62,746—Los Angeles Co	N&M	Indlv	15	6	0	0			
Ellis Shaw Rest Home	Gen	Indlv	15	6	0	0			
ithorne, 9,596—Los Angeles Co	Gen	Indlv	15	6	0	0			
Iuwthorne Hospital	Gen	Indlv	15	6	0	0			
its 216—Siskiyou Co	Gen	Indlv	15	6	0	0			
ilts Hospital	Gen	Indlv	15	6	0	0			
illister, 3,737—San Benito Co	Inst	County	116	84	0	16	4,494		
San Benito County Hospital	Inst	County	116	84	0	16	4,494		
ondo, Los Angeles Co	Inst	County	116	84	0	16	4,494		
Los Amigos Rancho, Psy	Mental County	County	602	602	0	47			
chiatric Unit	Mental County	County	602	602	0	47			
ene, 164—Kern Co	Gen	Indlv	15	6	0	0			
ern County Preventorium	TB	County	44	43	0	1	7		
ngsburg, 1,322—Fresno Co	Gen	Indlv	8	6	2	0	3	146	
ngsburg, Sanitarium	Gen	Indlv	8	6	2	0	3	146	
rescenta, 1,510—Los Angeles Co	N&M	Part	28	18	0	3	7		
imball Sanitarium	N&M	Part	28	18	0	3	7		
iguna Beach, 1,681—Orange Co	Gen	Indlv	4	1	1	0	11		
Laguna Beach Hospital	Gen	Indlv	4	1	1	0	11		
Mesa, 2,517—San Diego Co	TB	Indlv	14	6	0	7			
La Mesa Sanatorium	TB	Indlv	14	6	0	7			
neoin, 2,094—Placer Co	N&M	Indlv	15	8	0	1	20		
Joslin's Sanatorium	N&M	Indlv	15	8	0	1	20		
ermore, 3,119—Alameda Co	TB	County	8	85	0		201		
Del Valle Preventorium	TB	County	8	85	0		201		
ne Pine, 360—Inyo Co	Gen	Indlv	7	3	4	0	1	82	
Lone Pine Hospital	Gen	Indlv	7	3	4	0	1	82	
ng Beach, 142,032—Los Angeles Co	TB	Indep	20	16	0	1	31		
Rock Haven Preventorium	TB	Indep	20	16	0	1	31		
s Angeles, 1,230 048—Los Angeles Co	N&M	Indep	15	6	0				
Banksia Sanitarium	TB	Indlv	38	20	0	4	4		
Belvedere Sanitarium	N&M	Indlv	95	67	0	4	2		
Casa del Mar Sanitarium	N&M	Indlv	40	22	0		16		
Century Rest Home	Conv	Indlv	22	11	0		13		
Chase Diet Sanitarium	Conv	Indlv	22	11	0		13		
Junior League Convalescent	Conv	Indep	20	18	0				
Home for Children	N&M	Indlv	8	6	0				
Las Palmas Rest Home	N&M	Indlv	8	6	0				
Los Angeles County Juve	MenDef	County	116	84	0	16	4,494		
nile Hall Hospital	Emerg	City	30						
Los Angeles Receiving Hosp	Emerg	City	30						
Los Angeles Smallpox Quar	Iso	City	100	7	0	0	7		
antine Hospital	N&M	Part	20	15	0				
Marshall Manor Sanitarium	N&M	Indlv	10	2	10				
Martha Lee Maternity Hosp	N&M	Indlv	18	11	0	1	26		
Mira Flores Sanitarium	N&M	Indlv	40	30	0	2	92		
Resthaven	N&M	Indlv	18	3	0				
St Barnabas House	Conv	Church	10	10	10	0	3	60	
St Vincent's Mater Home	Mater	Indep	10	10	10	0	3	60	
Salvation Army Truelove	Mater	Church	60	49	40	0	2	19	
Home	Mater	Indlv	9	3	9	0			
Southwest Maternity Hosp	Inst	VetAd	1,212	840	0		1,20		
Veterans Admin Home	Conv	Part	20	7	0				
Wishire Rest Home	Conv	Part	20	7	0				
yalton, 837—Sierra Co	Gen	Indlv	8	2	2	0	2		
Sierra Valley Hospital	Gen	Indlv	8	2	2	0	2		
anor, Marlin Co	Gen	Indlv	75	4	0		48		
Bothin Convalescent Home	Conv	Indep	75	4	0		48		
for Women and Children	Conv	Indep	75	4	0		48		
anteen, 1,614—San Joaquin Co	Gen	Indlv	7	2	4	0	38		
Manteca Hospital	Gen	Indlv	7	2	4	0	38		
arysville, 5,763—Yuba Co	Inst	County	60	70	3	0	1	32	
Yuba County Hospital	Inst	County	60	70	3	0	1	32	
ered, 7,066—Merced Co	Gen	County	220	216	11	0	18	1,429	
Merced County Hospital	Gen	County	220	216	11	0	18	1,429	
onrovia, 10,890—Los Angeles Co	TB	Indlv	10	15	0	2	32		
Dore Sanatorium	TB	Indlv	10	15	0	2	32		
Monrovia Sanitarium	TB	Indlv	10	15	0	2	32		
Mountain View Rest Home	N&M	Indlv	40						
Norumbega Sanatorium	TB	Indlv	20	14	0	3	70		

CALIFORNIA—Continued

Related Institutions	Type of Service	Control	Beds, Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Palm Grove Sanatorium	N&M	Part	35	30					
Pine Rest Sanatorium	TB	Indep	22	8					
Montrose, 1,040—Los Angeles Co	Gen	Indlv	25	8		0			
Dr Utley's Hospital Sanit	Gen	Indlv							
Mountain View, 3,308—Santa Clara Co	Gen	Indlv	7	1		0			400
Mountain View Hospital and Sanitarium	Gen	Indlv	10	8		0	1		15
National City, 7,301—San Diego Co	N&M	Indlv	8	4	0	0			34
Wilhelmine Home	Gen	Indlv	64	60		0			114
Nevada City, 1,701—Nevada Co	Gen	Indlv	5	1	2	0	3		44
Nevada City Sanitarium	Inst	County	12	3		0	1		28
Nevada County Hospital	Inst	County	120	90		0			
Newport Beach, 2,203—Orange Co	Gen	Indlv	12	4	12	0	3	12	
Newport Beach Hospital	Inst	Church	14	6	30	0	2		201
Oakland, 284,063—Alameda Co	Mater	Church	12	0	4	0	3		200
Fred Knich Orphanage	Gen	Indlv	12	3		0			
Inez Sanitarium	Gen	Indlv	12	3		0			
Kings Daughters of Calif	Gen	Indlv	12	3		0			
Home for Incurables	Gen	Indlv	12	3		0			
Oakland Maternity Hospital	Gen	Indlv	12	3		0			
Salvation Army Women's	Gen	Indlv	12	3		0			
Home and Maternity Hos	Gen	Indlv	12	3		0			
pital	Gen	Indlv	12	3		0			
Pacific Grove, 5,558—Monterey Co	Gen	Indlv	12	3		0			
Bayview Hospital	Gen	Indlv	12	3		0			
Palm Springs, 417—Riverside Co	Gen	Indlv	12	3		0			
Reld Solarium Clinic and Hospital	Gen	Indlv	12	3		0			
Placerville, 2,322—Eldorado Co	Inst	County	58	30	2	0			69
El Dorado County Hospital	Inst	County	58	30	2	0			69
Porterville, 5,303—Tulare Co	Gen	Indlv	8	1	2	0	1		52
Mt Whitney Hospital	Gen	Indlv	16	8	3	0	3		278
Porterville Hospital	Gen	Indlv	6	2	1	0	1		18
Quincy 1,970—Plumas Co	Gen	Indlv	80	40	3	0	2		260
Plumas Industrial Hospital	Gen	Indlv	74	02		0	3		42
Redding, 4,188—Shasta Co	Gen	Indlv	40	34		0	8		97
Shasta County Hospital	Gen	Indlv	36	20		0			
Represa, 30—Sacramento Co	MenDef	Part	36	20		0			
California State Prison Hos	MenDef	Part	36	20		0			
pital	MenDef	Part	36	20		0			
Rosemead, 2,717—Los Angeles Co	Emerg	City	7	2		0	3		
Rosemead Lodge	Emerg	City	7	2		0	3		
Ross, 1,355—Marin Co	Emerg	City	7	2		0	3		
The Cedars	Emerg	City	7	2		0	3		
Sacramento 93 750—Sacramento Co	Emerg	City	7	2		0	3		
Sacramento Emergency Hosp	Emerg	City	7	2		0	3		
Sallinas, 10 263—Monterey Co	Inst	County	109	91	6	0	5		830
Monterey County Hospital	Inst	County	109	91	6	0	5		830
San Andreas, 775—Calaveras Co	Gen	Indlv	6	1	2	0	1		36
San Andreas Hospital	Gen	Indlv	6	1	2	0	1		36
San Diego, 147,095—San Diego Co	N&M	Indlv	9	6		0	1		
Carter Sanitarium	N&M	Indlv	20	8		0	6		154
Fraser Convalescent Home	Conv	Indlv	9	5		0	2		15
Lane Sanitarium	TB	Indlv	12	7		0	1		35
Peterson Sanitarium	N&M	Indlv	12	7		0	1		35
San Francisco 634 304—San Francisco Co	N&M	Indlv	25	8		0			
Greer Home	N&M	Indlv	25	8		0			
Laguna Honda Home Infr	N&M	Indlv	25	8		0			
mary	N&M	Indlv	25	8		0			
San Francisco Emergency	N&M	Indlv	25	8		0			
Hospital Service	N&M	Indlv	25	8		0			
San Francisco Home for In	N&M	Indlv	25	8		0			
curables, Aged and Sick	N&M	Indlv	25	8		0			
San Francisco Polytechnic	N&M	Indlv	25	8		0			
San Gabriel, 7,224—Los Angeles Co	N&M	Indlv	25	8		0			
Baldy View Sanitarium	N&M	Indlv	25	8		0			
Mission Lodge Sanitarium	N&M	Indlv	25	8		0			
San Jose, 57,051—Santa Clara Co	N&M	Indlv	25	8		0			
Beale Convalescent Home	N&M	Indlv	25	8		0			
Sunnyholme Preventorium	N&M	Indlv	25	8		0			
San Leandro, 11,455—Alameda Co	TB	County	43	40		0	2		67
Fairmont Hospital of Ala	TB	County	43	40		0	2		67
ameda County	TB	County	43	40		0	2		67
San Mateo, 13 444—San Mateo Co	Inst	County	900	861		0	15		1,636
San Mateo Preventorium	Inst	County	900	861		0	15		1,636
San Quentin, 328—Marin Co	TB	Indep	28	20		0	2		27
San Quentin Prison Hosp	TB	Indep	28	20		0	2		27
Santa Ana, 30,322—Orange Co	Inst	State	140	120		0			1,595
Orange County Children's	Inst	State	140	120		0			1,595
Health Camp	Inst	State	140	120		0			1,595
Santa Clara, 6 362—Santa Clara Co	TB	Indep	40	33		0	2		68
Palm Lodge	TB	Indep	40	33		0	2		68
Santa Cruz, 14 305—Santa Cruz Co	Conv	Indlv	10	5		0			
Santa Cruz County Hospital	Conv	Indlv	10	5		0			
Santa Monica, 37,146—Los Angeles Co	Gen	County	12	12	6	0			1,027
Santa Monica Diet Home	Gen	County	12	12	6	0			1,027
Santa Monica Rest Home	Gen	County	12	12	6	0			1,027
Santa Rosa, 10,630—Sonoma Co	Conv	Indlv	10	4		0	2		68
Sonoma County Hospital	N&M	Indlv	41	39		0			
Santee, 250—San Diego Co	Gen	County	124	110	6	0			
Legion of Honor, Psychiatric	Gen	County	124	110	6	0			
Unit	Gen	County	124	110	6	0			
Saratoga, 2,523—Santa Clara Co	Mental	County	24	23		0	2		
Odd Fellows' Home	Mental	County	24	23		0	2		
Sonora, 2,278—Tulumbine Co	Inst	Frat	41	41		0	2		497
Tuolumne County Hospital	Inst	Frat	41	41		0	2		497
Spadra, 39—Los Angeles Co	Gen	County	30	25	2	0	3		287
Pacific Colony	Gen	County	30	25	2	0	3		287
Stanford University, 720—Santa Clara Co	Gen	County	30	25	2	0	3		287
Stanford Conv Home	Gen	County	30	25	2	0	3		287
Suisun City, 905—Solano Co	Inst	State	664	450		0	2		141
Solano County Hospital	Inst	State	664	450		0	2		141
Ventura 11,412—Ventura Co	Inst	County	66	70	6	0	2		470
Ventura School for Girls	Inst	County	66	70	6	0	2		470
Verdugo City 5 000—Los Angeles Co	Inst	State	15	5		0	1		116
Rock Haven Sanitarium	Inst	State	15	5		0	1		116
	N&M	Indlv	40	46		0			

REGISTERED HOSPITALS

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CALIFORNIA—Continued

Related Institutions	Type of Service	Control	Beds Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Veterans Home—Napa Co									
Veterans Home Hospital	Inst	State	250	225	0	8	649		
Waterman—Amador Co									
Preston School of Industry Hospital	Inst	State	44	10	0	3	1340		
Weaverville 500—Trinity Co									
Trinity County Hospital	Gen	County	32	18	0				
Willows 2024—Glenn Co									
Glenn County Hospital	Gen	County	35	25	0				
Wilmar—Los Angeles Co									
Jean G McCracken Home	N&M	Indiv	40	40	0				
Yuba City 300—Butter Co									
Sutter County Hospital	Gen	County	64	37	0	3	319		
Summary for California	Number	Beds	Average Patients	Patients Admitted					
Hospitals and sanatoriums	273	48,779	38,512	423,842					
Related Institutions	135	11,145	8,948	30,707					
Totals	408	59,924	47,460	454,549					
Refused registration	77	2,552							

COLORADO

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Alamosa, 5107—Alamosa Co									
Lutheran Hospital	Gen	Church	15	13	5	0	6	801	
Aspen 705—Pitkin Co									
Citizens Hospital	Gen	Indep	20	0	2	0	2	42	
Boulder 11223—Boulder Co									
Boulder Colorado Sanitarium and Hospital	Gen	Church	101	40	0	39	10	1,097	
Community Hospital	Gen	Indep	60	13	8	0	7	622	
Mesa Vista Sanatorium	TB	Part	32	20	0	2	37		
Canon City 5038—Fremont Co									
Graves Hospital	Gen	Indiv	24	7	0	0	4		
Colorado Springs 33237—El Paso Co									
Beth El General Hosp	Gen	Church	92	64	13	76	12	1,855	
Colorado Springs Psycho-pathic Hospital	N&M	Part	150	80	0	1	144		
Cragmor Sanatorium	TB	Indep	130	24	0	5	66		
Crestone Heights Sanitarium and Hospital	Gen	Indiv	22	8	5	0	5	240	
Clockner Sanat & Hosp	Gen	Church	210	160	13	115	8	1,326	
National M E Sanat for Tuberculosis	TB	Church	70	62	14	2	79		
St Francis Hospital and Sanatorium	Gen	Church	138	78	12	40	8	1,038	
Sunnyrest Sanatorium	TB	Indep	60	45	0	3	20		
Union Printers Home and Tuberculosis Sanatorium	GenTB	Indep	350	340	0		154		
Cortez 921—Montezuma Co									
Johnson Hospital	Gen	Indiv	12	7	2	0	2	340	
Cripple Creek 1427—Teller Co									
Cripple Creek Hospital	Gen	Indep	40	21	6	0	1	175	
Del Norte 1410—Rio Grande Co									
St Joseph's Sanitarium	Gen	Church	15	8	8	0	257		
Delta 2438—Delta Co									
Western Slope Hospital	Gen	Indep	11	5	3	0	3	171	
Deaver 287501—Denver Co									
Bethesda Sanatorium	TB	Church	68	35	0	2	36		
Beth Israel Hospital	Gen	Church	41	19	12	0	9	535	
Childrens Hospital	Chil	Indep	137	103	18	25	23	3,045	
Colorado General Hosp	Gen	State	158	128	20	90	33	2,005	
Colorado Psychopathic Hos-pital	Mental	State	78	68	0	10	1,638		
Duver General Hosp	Gen	Cy&Co	450	402	60	102	71	12,046	
Fitzsimons General Hosp	Gen	Army	1,832	1,124	8	0	111	4,620	
Mary H Donaldson Woman's Hospital of Florence (Crittendon Home)	Mater	Indep	25	12	15	0	3	411	
Mercy Hospital	Gen	Church	165	118	20	100	10	4,048	
Mt Airy Sanitarium	N&M	Indep	40	30	0	2	250		
National Jewish Hospital	TB	Indep	270	270	0	8	231		
Physicians and Surgeons Hospital	Gen	Indiv	55	26	25	0			
Porter Sault and Hospital	Gen	Church	100	23	12	0	10	700	
Presbyterian Hospital	Gen	Church	150	99	22	88	17	3,770	
St Anthony's Hospital	Gen	Church	200	94	15	50	20	2,455	
St Joseph's Hospital	Gen	Church	200	150	25	85	12	3,680	
St Luke's Hospital	Gen	Church	215	132	50	100	27	4,833	
Santa House	TB	Indep	45	35	0	1	23		
San Juan 5400—La Plata Co									
Mercy Hospital	Gen	Church	40	27	7	16	4	819	
Lakewood 780—Arapahoe Co									
Swedish National Sanatorium for Tuberculosis	TB	Indep	77	56	0	3	71		
Fairplay 11—Park Co									
Fairplay Hospital	Gen	Part	20	12	2	0	3	218	
St John 15—Arapahoe Co									
Station Hospital	Gen	Army	44	9	0	0	422		
St Lyon 25—Mont Co									
Veterans Admin Ho pital	Gen	Vet Ad	50	50	0	46	1,332		
Fort Morgan 4425—Morgan Co									
Fort Morgan Ho pital	Gen	Indiv	25	5	6	0	3	450	
Chenwood Springs 15—Carfield Co									
Chenwood Springs Sanit	Gen	Indep	15	9	6	0	1		
Grand Junction 104—Mesa Co									
St Mary's Hospital	Gen	Church	65	27	12	25	10	1,012	
Cherry 1540—Weld Co									
Cherry Hospital	Gen	County	100	47	14	0	25	1,774	
Weld County Ho pital	Gen	County	70	63	0	1	467		

COLORADO—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Hayden 554—Routt Co									
Solandt Memorial Hospital	Gen	Indep	16	3	3	0	1	127	
Holyoke 1,226—Phillips Co									
Holyoke Hospital	Gen	Indiv	10	4	2	0	1		
La Junta 7,193—Otero Co									
A T & S F Railroad Hosp	Indus	Indus	30	22	0	3	380		
Menonita Hosp and Sanit	Gen	Church	70	38	10	31	9	850	
Lamar 4233—Prowers Co									
Charles Maxwell Hospital	Gen	Indiv	50	18	7	0	3	650	
Las Animas 2517—Bent Co									
Blackwill Hospital	Gen	Indiv	13	6	3	0		128	
Leadville 3,771—Lake Co									
St Vincent Hospital	Gen	Church	25	12	3	0	4	185	
Longmont 6029—Boulder Co									
Longmont Hospital	Gen	Indiv	33	16	7	0	0	507	
Monte Vista 2510—Rio Grande Co									
Monte Vista Hospital	Gen	Part	12	4	5	0	2	212	
Montrose 3566—Montrose Co									
Montrose Hospital	Gen	Indiv	12	5	3	0	1	310	
St. Luke's Hospital	Gen	Indiv	12	3	2	0	1	138	
Oak Creek, 1211—Routt Co									
Oak Creek Hospital	Gen	Indiv	10	5	2	0	1	145	
Red Cross Hospital	Gen	Part	15	2	2	0	2	402	
Ouray 707—Ouray Co									
Bates Hospital	Gen	Indiv	20	5	3	0	2	208	
Pueblo 5006—Pueblo Co									
Colorado State Hospital	Mental	State	2,020	2,070	0	2	503		
Corwin Hospital	Gen	Indus	210	92	10	42	10	1,099	
Parkview Hospital	Gen	Indep	85	40	7	38	7	1,100	
St Mary Hospital	Gen	Church	100	66	12	46	3	1,702	
Woodcroft Hospital	N&M	Indep	130	75	0	2	149		
Rocky Ford 3426—Otero Co									
Physicians Hospital	Gen	Part	10	7	3	0	2	230	
Salida 5065—Chaffee Co									
D & R G W Railroad Hos-pital	Gen	Indus	81	31	4	0	14	974	
Red Cross Hospital	Gen	Indiv	40	22	3	0	8	483	
Silverton 1301—San Juan Co									
Silverton Miners Union Hosp	Indus	Indus	20	3	0	2	57		
Splavak, 500—Jefferson Co									
Sanat of the Jewish Con-sumptives Relief Society	TB	Indep	300	240	0	4	163		
Steamboat Springs 1188—Routt Co									
Steamboat Springs Hospital	Gen	Indiv	10	4	3	0			
Sterling 7105—Logan Co									
St Benedict Hospital	Gen	Church	30	12	6	0	52		
Towaoc 60—Montezuma Co									
Ute Mountain Indian Hosp	Gen	Indian	22	9	2	0	1	248	
Trinidad 11732—Las Animas Co									
Mt San Rafael Hospital	Gen	Church	65	40	10	20	5	1,176	
Walsenburg 5,503—Huerfano Co									
Lammie Brothers Hospital	Gen	Part	20	8	3	0	1	352	
Wheat Ridge 1030—Jefferson Co									
Evangelical Lutheran Sanit	TB	Church	100	73	0	8	54		
Woodmen—El Paso Co									
Modern Woodmen of Amer-ica Sanatorium	TB	Frat	244	168	0	11	294		
Yuma 1360—Yuma Co									
Lutheran Deaconess Hospital	Gen	Church	10	2	4	0	2	110	
Related Institutions									
Boulder 11223—Boulder Co									
Boulder County Hospital	Gen	County	30	20	4	0	160		
Breckenridge 436—Summit Co									
Summit County Hospital	Inst	County	11	10	0	0	10		
Brush 2,312—Morgan Co									
Eben ezer Hospital	Gen	Church	24	12	8	0	3	338	
Canon City 5038—Fremont Co									
Colorado State Penitentiary Hospital	Inst	State	22	15	0	0	427		
Collbran 341—Mesa Co									
Plateau Valley Congregation Hospital	Gen	Church	8	3	4	0	1	154	
Colorado Springs 33237—El Paso Co									
Myron Stratton Home	Inst	Indep	20	13	0	3	66		
Denver 287501—Denver Co									
Church Home for Conva-lescents	Conv	Church	22	14	3	0	0	265	
Denver Orphans Home	Inst	Indep	25	5	0	1			
Ex Patient Tuber Home	TB	Indep	81	45	0				
National Home for Jewish Children	Inst	Indep	31	13	0		454		
Oakes Home	TB	Church	150	45	0				
St Anne's Convalescent Home for Children	Chil	Church	25	15	0	0	2	38	
St. Clara's Orphanage	Chil	Church	30	3	0				
Steele Memorial Hospital	Iso	Cy&Co	85	30	0	7	569		
Englewood 7980—Arapahoe Co									
Mokery Sanitarium	N&M	Indiv	14	14	0				
Temple Sanatorium	Conv	Indiv	25	27	0	1	125		
Estes Park 417—Larimer Co									
Dr. Henry Reid Clinic and Hospital	Gen	Indiv	10	7	0				
Fruita 1033—Mesa Co									
Fruita Community Hospital	Gen	Indep	14	8	2	0	2	312	
Golden 2426—Jefferson Co									
State Industrial School for Boys	Inst	State	25	6	0	1			
Grand Junction 10,247—Mesa Co									
State Home and Training School for Mental Defec-tives	MenDef	State	300	271	0	1	50		
Homelake—Rio Grande Co									
Colorado State Soldiers and Sailors Home	Inst	State	40	18	0	1	112		
La Vista 782—Huerfano Co									
La Vista Ho pital	Gen	Indiv	8	1	2	0	1	45	

Key to symbols and abbreviations is on page 911

COLORADO—Continued

Related Institutions	Type of Service	Control	Beds, Rated Capacity	Average Patients	Basinsets	Student Nurses	RNs for Nursing	Patients Admitted
Longmont, 6,020—Boulder Co St. Arlyn Hospital	Gen	Indiv	8		5	0		
Loveland, 5,506—Larimer Co Loveland Hosp and Clinic	Gen	Part	10	4	5	0	3	234
Namagan Hospital	Gen	Indep	14	4	0	0	2	188
Pueblo, 50,096—Pueblo Co City Contagious Hospital	Iso	City	10	0	0	0		9
Ridge, Jefferson Co State Home and Training School for Mental Defectives	MenDef	State	200	185		0	0	29
Selbert, 279—Kit Carson Co Selbert Hospital	Gen	Indiv	0	3	2	0	1	114
Windsor, 1,802—Weld Co Bartz Memorial Hospital	Gen	Indiv	7	2	2	0	1	54
Summary for Colorado								
Hospitals and sanatoriums	Number	Beds	Average Patients	Patients Admitted				
Related Institutions	70	11,541	8,306	75,468				
	20	1,260	860	9,296				
Totals	108	12,801	9,266	84,762				
Refused registration	16	507						

CONNECTICUT

Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated Capacity	Average Patients	Basinsets	Student Nurses	RNs for Nursing	Patients Admitted
Bridgeport, 146,716—Fairfield Co Bridgeport Hospital	Gen	Indep	208	241	62	110	72	7,592
St Vincent's Hospital	Gen	Church	216	160	35	70	25	4,907
Bristol, 25,451—Hartford Co Bristol Hospital	Gen	Indep	84	47	16	40	11	1,446
Canaan, 567—Litchfield Co Robert C Geer Wein Hosp	Gen	Indep	25	8	6	0	3	186
Cromwell, 2,814—Middlesex Co Cromwell Hall	Gen	Indiv	35	23		0	0	127
Danbury, 22,261—Fairfield Co Danbury Hospital	Gen	Indep	111	81	23	60	10	2,690
Derby, 10,788—New Haven Co Griffin Hospital	Gen	Indep	82	52	19	32	11	1,020
Greens Farms, 275—Fairfield Co Hall Brooke Sanitarium	N&M	Indiv	100	63		0	0	135
Greenwich, 5,981—Fairfield Co Blythebrook	N&M	Part	65	59		0		105
Greenwich Hospital	Gen	Indep	101	62	24	52	11	1,049
Hartford, 104,072—Hartford Co Cedarcrest	TB	State	280	206		0	25	206
Charter Oak Private Hosp	Gen	Indep	14	7		0	2	206
Hartford Hospital	Gen	Indep	093	422	87	228	60	13,062
Mt Sinai Hospital	Gen	Indep	65	41	10	23	10	1,900
Municipal Hospital	Gen	City	244	204	23	37	21	2,254
Neuro Psychiatric Inst and Hosp of the Hartford Treatment	N&M	Indep	200	178		7	40	421
St Francis' Hospital	Gen	Church	450	250	70	192	55	8,472
Wildwood Sanatorium	TB	Indep	50	43		0	4	70
Meriden, 38,481—New Haven Co Meriden Hospital	Gen	Indep	112	59	24	45	20	1,812
Meriden State Tuberculosis Sanatorium	TB	State	252	201		0	24	201
Middletown, 24,574—Middlesex Co Connecticut State Hosp	Mental	State	2,337	3,252		45	60	776
Middlesex Hospital	Gen	Indep	135	100	25	50	10	2,097
Milford, 12,060—New Haven Co Milford Hospital	Gen	Indep	25	15	0	0	2	707
New Britain, 68,128—Hartford Co New Britain General Hospital	Gen	Indep	208	127	36	70	7	3,634
New Haven, 102,055—New Haven Co Grace Hospital	Gen	Indep	242	171	44	77	37	5,634
Hospital of St Raphael	Gen	Church	212	208	28			
Institute of Human Relations, Psychiatric Clinic	N&M	Indep	51	29		0	17	161
New Haven Hospital	Gen	Indep	462	335	42	191	146	7,551
Newington, 4,572—Hartford Co Newington Home for Crippled Children	Orth	Indep	217	208		0	8	168
Veterans Admin Hospital	Gen	VetAd	250	203		0		2,124
New London, 29,040—New London Co Home Memorial Hospital	Gen	Indep	48	21	12	0	6	526
Lawrence and Memorial Associated Hospitals	Gen	Indep	192	122	38	68	34	2,711
Dr Lenu's Private Hospital	Sur	Indiv	24	23		0	6	723
New Milford, 4,700—Litchfield Co New Milford Hospital	Gen	Indep	25	14	8	0	5	365
Newtown, 482—Fairfield Co Fairfield State Hospital	Mental	State	500	New				
Niantic, 1,697—New London Co The Seaside	TB	State	50	50		0	2	7
Norwalk, 36,019—Fairfield Co Norwalk General Hospital	Gen	Indep	142	82	2	36	24	2,552
Norwich, 23,021—New London Co Norwich State Hospital	Mental	State	2,770	2,680		0	19	1,283
Norwich State Tuberculosis Sanatorium	TB	State	408	220		0	60	170
William W Backus Hospital	Gen	Indep	127	86	28	36	30	2,137
Putnam, 7,318—Windham Co Day Kimball Hospital	Gen	Indep	71	48	9	0	18	1,404

CONNECTICUT—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated Capacity	Average Patients	Basinsets	Student Nurses	RNs for Nursing	Patients Admitted
Rockville, 7,446—Tolland Co Rockville City Hospital	Gen	Indep	35	11	10	0	0	480
Sharon, 1,710—Litchfield Co Sharon Hospital	Gen	Indep	40	16	12	0	6	580
Shelton, 10,113—Fairfield Co Laurel Heights State Tuberculosis Sanatorium	TB	State	340	239		0	55	140
South Manchester, 10,025—Hartford Co Manchester Memorial Hospital	Gen	Indep	55	43	11	0	18	1,280
South Norwalk, 8,968—Fairfield Co Dr Wadsworth's Sanitarium	N&M	Indiv	35	18		0	2	15
Stafford Springs, 3,492—Tolland Co Cyril and Julia G Johnson Memorial Hospital	Gen	Indep	37	21	10	0	11	610
Stamford, 46,346—Fairfield Co Dr Burnes Sanitarium	N&M	Indiv	75	41		0	2	129
Stamford Hall	N&M	Indep	250	185		0	8	175
Stamford Hospital	Gen	Indep	230	125	36	50	2	3,224
Tophamsee Grange	N&M	Indep	27	19		0	6	27
Thompsonville, 8,527—Hartford Co Elmeroff-Dr Vail's Sanat	N&M	Indep	20	12		0		
Torrington, 26,040—Litchfield Co Charlotte Hungerford Hospital	Gen	Indep	115	57	21	0		1,741
Wallingford, 11,170—New Haven Co Gaylord Farm Sanitarium	TB	Indep	140	130		0	13	230
Waterbury, 69,902—New Haven Co St Mary's Hospital	Gen	Church	220	169	44		19	6,186
Waterbury Hospital	Gen	Indep	321	162	36	79	8	4,710
West Haven, 25,808—New Haven Co William Wirt Winchester Hospital	TB	Indep	60	60		0	20	174
Westport, 6,077—Fairfield Co Westport Sanitarium	N&M	Indep	120	65		0	1	165
Williamantle, 12,102—Windham Co St Joseph's Hospital	Gen	Church	45	33	10	0	15	1,105
Winsted, 7,883—Litchfield Co Litchfield County Hospital	Gen	Indep	64	54	11	0	10	910
Related Institutions								
Bridgeport, 146,716—Fairfield Co Englewood Hospital	IsoTB	City	150	60		0		641
Hillside Home and Hospital	Inst	City	400	216		0	10	884
Cheshire, 3,203—New Haven Co Connecticut Reformatory	Inst	State	25	4		0	0	51
Ipswich, 2,777—Middlesex Co Pettipaug Lodge and Sanit	Conv	Indiv	16	15		0	1	20
Greenwich, 5,981—Fairfield Co Bowman's Sanatorium	Conv	Indiv	20	10		0	1	5
Crest View Sanitarium	N&M	Indiv	24	20		0	2	44
Municipal Hospital	IsoTB	City	35	6	1	0	3	97
Gulford, 1,880—New Haven Co Gulford Sanatorium	Gen	Indep	10	9	5	0	2	105
Hartford, 104,072—Hartford Co Hartford Isolation Hospital	Iso	City	05	48		21	4	802
Manchester Depot, 306—Tolland Co Mansfield State Training School and Hospital	MenDef	State	1,100	1,023		0	0	171
Meriden, 38,481—New Haven Co Connecticut School for Boys	Inst	State	17	11		0	2	300
Middletown, 24,574—Middlesex Co Long Lane Farm Infirmary	Inst	State	9	6		0	1	
New Canaan, 2,372—Fairfield Co Silver Hill	Nerv	Indep	10	6		0	1	
New Haven, 102,055—New Haven Co Children's Community Center of the New Haven Orphan Asylum	Inst	Indep	72	47		0	3	175
Jewish Home for the Aged	Inst	Indep	38	38		0	1	8
Springdale Home	Inst	City	63	11		0	2	111
Yale Infirmary	Inst	Indep	34	8		0		635
New London, 29,040—New London Co Connecticut College Infirmary	Inst	Indep	10	8		0	2	348
Niantic, 1,697—New London Co Connecticut State Farm for Women	Inst	State	60	45	12	0	7	
Noroton Heights, 700—Fairfield Co Soldiers' Hospital	Inst	State	129	109		0	6	800
Springdale, 663—Fairfield Co Nestledown Home	Conv	Indiv	12	8		0		
Stamford, 46,346—Fairfield Co Psychanalytic Sanatorium	Epil	Indiv	25	18		0	1	5
Stratford, 10,212—Fairfield Co Sunnyside Sanitarium	Conv	Indiv	15	12		0	4	38
Watertown, 8,102—Litchfield Co Taft School Infirmary	Inst	Indep	32	1		0		
West Hartford, 24,941—Hartford Co St Agnes Home	Mater	Church	10	3	12	0	3	110
West Haven, 25,808—New Haven Co West Haven Conv Home	Conv	Indiv	6	6		0	1	4
West Haven Maternity Home	Mater	Part	8	5	8	3	1	170
Wethersfield, 7,512—Hartford Co Connecticut State Prison	Inst	State	70	5		0	0	250
Woodmont, 531—New Haven Co Woodmont Hall	Conv	Indep	16	0		0	2	20
Summary for Connecticut								
Hospitals and sanatoriums	Number	Beds	Average Patients	Patients Admitted				
Related Institutions	61	11,808	11,936	112,407				
	28	2,424	1,856	7,066				
Totals	89	16,232	13,792	119,561				
Refused registration	0							

Key to symbols and abbreviations is on page 911

REGISTERED HOSPITALS

VOLUME 100
NUMBER 12

DELAWARE

Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Dover, 4,800—Kent Co	Gen	Indep	30	20	8	0	9	805	
Kent General Hospital									
Furnhurst 332—New Castle Co	Mental	State	687	800	11	14	315		
Delaware State Hosp +000									
Ft Dupont (Delaware City P O)	Gen	Army	28	0	0	0	189		
Station Hospital									
Lewes 1 923—Sussex Co	Gen	Indep	56	22	8	15	4	722	
Beebe Hospital									
Marshallton 630—New Castle Co	TB	State	90	76	0	3	91		
Brandywine Sanatorium	1B	State	82	22	0	2	37		
Edgewood Sanatorium (col)									
Milford 3 719—Sussex Co	Gen	Part	30	9	0	3	287		
Marshall Hospital									
Milford Emergency Hosp	Gen	Indep	35	19	0	11	3	554	
Wilmington, 106,507—New Castle Co	Gen	Indep	176	181	24	79	23	4 142	
Delaware Hospital									
Homeopathic Hospital	Gen	Indep	165	91	30	57	14	3,132	
St Francis Hospital	Gen	Church	70	55	12	30	6	1 024	
Wilmington General Hosp	Gen	Indep	115	77	18	49	6	2 480	
Related Institutions									
Marshallton 630—New Castle Co	Conv	Indep	24	23	0				
Sunnybrook Cottage									
Stockley 138—Sussex Co	Men	Def State	280	212	0	1	62		
Delaware Colony									
Summary for Delaware									
Hospitals and sanatoriums	Number	Beds	Average Patients	Patients Admitted					
Related Institutions	2	304	235	128					
Totals	14	2 027	1 503	14 506					
Refused registration	0								

DISTRICT OF COLUMBIA

Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Washington 450,809									
Carson's Priv Hosp (col)	Gen	Indiv	15	11	4	0	3	300	
Central Dispensary and Emergency Hospital	Gen	Indep	260	189	153	21	0 506		
Chevy Chase Sanatorium	N&M	Indiv	23	10	0	5	60		
Children's Hospital	Chil	Indep	182	126			14 0,016		
Columbia Hosp for Women and Lying In Asylum	Mater	Indep	120	85	79	0	49	2 737	
Eastern Dispensary and Casualty Hospital	Gen	Indep	150	35	25	0	7	1 406	
Episcopal Eye, Ear and Throat Hospital	EE&T	Church	100	65	32	0	5 830		
Frederick's Hosp (col)	Gen	Fed	316	225	30	108	19	4 093	
Gallinger Municipal Hospital	Gen	City	650	488	54	150	32 12 930		
Garfield Memorial Hosp	Gen	Indep	278	163	43	160	27	7 200	
Georgetown Univ Hosp	Gen	Indep	216	150	51	86	14	4 225	
George Washington University Hospital	Gen	Indep	101	66	10	0	32	2 404	
National Homeopathic Hospital	Gen	Indep	60	34	20	38	1	1 431	
Providence Hospital	Gen	Church	235	164	80	75	18	5 416	
St Elizabeths Hospital	Gen	Fed	400	377	4	87	10	1 871	
St Elizabeths Hospital	Mental	Fed	4 090	4 797	87	10	858		
Sibley Memorial Hosp	Gen	Church	235	151	75	116	27	5 832	
Tuberculosis Hosp of D C	TB	State	210	150	0	18			
U S Naval Hospital	Gen	Navy	437	300	0	30	3 182		
Veterans Admin Hospital	Gen	VetAd	299	194	0	35	2 275		
Walter Reed Gen Hosp	Gen	Army	1 132	905	22	43	140	7 314	
Washington Sanitarium and Hospital	Gen	Church	170	130	12	85	20	1 611	
Related Institutions									
Washington 450,809									
Children's Summer Health Camp	TB	Indep	50	50	0				
District Training School (Lauri, Md P O)	Men	Def Fed	400	340	0	2	55		
Florence Crittenton Home	Mater	Indep	10	3	10	0	1	120	
Harrist Lane Hospital	Gen	Indiv	22	11	2	0	1	196	
Home for the Aged and Infirm	Inst	State	62	70	0	1	12		
Madall House Sanitarium	Conv	Indiv	22	12	0	3	160		
National Training School for Boys Hospital	Inst	Fed	60	15	0				
St John's Orphanage	Inst	Church	14	5	0	1	54		
U S Soldiers Home Hosp	Inst	Fed	300	300	0	0	1 504		
Washington Eye, Ear and Throat Hospital	FF&T	Indiv	10	1	0	3	415		
Washington Home for Incurables	Incur	Indep	130	120	0	1	49		
Dr Wm Cery Morau Nursing Home	Conv	Indiv	10	9	0	1			
Summary for District of Columbia									
Hospitals and sanatoriums	Number	Beds	Average Patients	Patients Admitted					
Related Institution	2	10 000	8 922	84 000					
Total	34	11 000	9 002	86 000					
Refused registration	0								

FLORIDA

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Arcadia, 4 682—De Soto Co									781
Arcadia General Hospital	Gen	Indep	30	13	3	0	4		
Bartow, 5 269—Polk Co	Gen	City	25	7	4	0	4	412	
Bartow General Hospital	Gen	County	55	52	4	0	5	1,028	
Polk County Hospital									
Century, 1 525—Escambia Co	Gen	Part	30	10	4	0	2	331	
Turberville Hospital									
Chhattahoochee, 450—Gadsden Co	Mental	State	8 000	3,707		33	9	1 325	
Florida Stna Hospital									
Clearwater 7 607—Pinellas Co	Gen	Indep	35	0	10	0	0	302	
Morton F Plant Hospital									
Coral Gables, 5 697—Dade Co	Gen	Indep	35	New	10	0	7		
University Hospital									
Dade City, 1,511—Pasco Co	Gen	Indlv	12	3	1	0	2	174	
Dr T F Jackson's Hosp	Gen								
Daytona Beach 10,588—Volusia Co	Gen	Indlv	10	4	8	0	5	110	
Daytona Beach Sanitarium	Gen	Indep	125	32	10	0	11	1 040	
Hallifax District Hospital	Gen								
Hallifax District Hospital (Colored Annex)	Gen	Indep	18	0	2	0	4	151	
De Land 5 246—Volusia Co	Gen	Indep	20	4	11	0			
De Land Memorial Hospital	Gen								
Ft Barrancus, 30—Escambln Co	Gen	Army	30	0	0	0	0	161	
Station Hospital									
Ft Lauderdale 8 666—Broward Co	Gen	Indep	20	5	4	0			
General Hospital									
Ft Myers 9 082—Lee Co	Gen	Indep	20	10	4	0	6	378	
Leo Memorial Hospital									
Ft Pierce 4 503—St Lucie Co	Gen	City	10	3	4	0	2	124	
Onklund Park Hospital	Gen	Indcp	12	10	3	0	3	170	
Sunrise Hospital									
Gainesville 10 465—Alachua Co	Gen	County	65	24	10	0	0	1 012	
Alachua County Hospital									
Homestead, 2,319—Dade Co	Gen	Part	15	2	5	0			
Post Graduate Hospital									
Jacksonville, 129 540—Duval Co	Gen	Church	65	24	10	21	4	440	
Brewster Hosp (col)	Gen	County	170	144	15	0	22	2 649	
Duval County Hospital	Gen								
Dr Randolph's Sanitarium	N&M	Indlv	10	5	0	1	11		
Riverside Hospital	Gen	Indep	40	21	6	25	0	705	
St Luke's Hospital	Gen	Indep	153	71	22	68	14	2 550	
St Vincent a Hospital	Gen	Church	200	73	40	70	11	2,505	
Key West 12 831—Monroe Co	Gen	USPHS	112	68	0	11	718		
U S Marina Hospital									
Lake City 4 416—Columbia Co	Gen	Indep	15	7	5	0	2	337	
Lake Shore Hospital	Gen	VetAd	307	275	0	27	2 741		
Veterans Admin Hospital									
Lakeland 15,544—Polk Co	Gen	City	85	29	18	13	2	1 037	
Morrell Memorial Hospital	Gen								
Manatee 3 219—Manatee Co	Gen	Indlv	20	6	3	0	1	360	
Rivers de Hospital									
Murianna 3 372—Jackson Co	Gen	Indlv	15	4	1	0	2	110	
Baltzell Hospital									
Melbourne 2 677—Brevard Co	Gen	Indep	27	5	3	0			
Brevard Hospital									
Miami 110 637—Dade Co	Gen	Indlv	30	10	8	0			
Biltmore Hospital	Gen	County	96	48	12	0	9	1 005	
Dade County Hospital	Gen								
Jamea M Jackson Memorial Hospital	Gen	City	293	211	82	80	20	6 302	
Miami Retreat	N&M	Indlv	65	12	0	1	130		
Reese Boulevard Hospital	Gen	Indlv	16	11	5	0	3	300	
Victorin Hospital	Gen	Indlv	62	23	10	0	18	1 200	
Miami Beach 0 494—Dade Co	Gen	Church	100	20	6	0	20	868	
St Francis Hospital									
Ocala 7,251—Marion Co	Gen	Cy&Co	85	24	10	16	4	723	
Munroe Memorial Hospital	Gen								
Orlando, 27,330—Orange Co	Gen	Church	100	52	14	38	10	057	
Florida Sanit and Hosp	Gen	Indep	130	40	20	54	0	2 087	
Orange General Hospital	Gen								
Palatka, 6,500—Putnam Co	Gen	Part	12	5	4	0			
Glendale Terrace Hospital	Gen	Indlv	25	0	0	0	2	65	
Mary Lawson Sannt (col)	Gen	Indlv	26	5	6	0	2	605	
Parkview Hospital									
Panama City 5 402—Bay Co	Gen	Part	13	4	2	0			
Panama City Hospital									
Drs Whitfield and Fraser Hospital	Gen	Part	17	5	4	0	2	202	
Pensacola 31 579—Eecambia Co	Gen	Church	100	42	10	43	4	1 045	
Pensacola Hospital	Gen	Navy	100	176	0	10	1 442		
U S Naval Hospital	Gen								
Quincy 3 788—Gadsden Co	Gen	Indep	22	5	4	0		260	
Gadsden County Hospital									
St Augustine 12,111—St John Co	Gen	Indus	65	28	5	20	4	941	
East Coast Hospital	Gen	Indep	85	53	5	0	7	756	
Fingler Hospital	Gen								
St Petersburg, 49 425—Pinellas Co	Gen	City	25	10	2	0	3	238	
City Hospital (Mercy Hos pital—Colored)	Gen	City	68	37	14	2	7	1 200	
City Hospital (Mound Park Hospital)	Gen	Church	40	12	10	0	5	462	
St Anthony's Hospital	Gen								
Sanford 10 100—Seminole Co	Gen	Indep	20	0	6	0	5	522	
Fernald Laughton Memorial Hospital	Gen								
Sarasota 8,200—Sarasota Co	Gen	Indlv	10	4	5	0	5	137	
Joseph Hilton Hospital	Gen	City	45	12	10	0	3	312	
Sarasota Hospital	Gen								
Sebring 2,012—Highlands Co	Gen	Indlv	10	3	2	0	2	50	
Sebring General Hospital	Gen	Indlv	13	4	2	0	2	225	
Dr Weems Hospital									
Tallahassee 10 700—Leon Co	Gen	Indlv	20	0	4	0	5	232	
Johnston's Sanitarium									
Tampa 101 161—Hillsborough Co	Gen	Part	75	46	5	0	7	1 000	
Centro Asturiano Hospital	Gen	Indep	26	11	0	2	600		
Children's Hospital	Chil		</						

FLORIDA—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Dr H M Cook & Sanatorium	Gen	Indiv	72	27	12	0	0	7	3,072
Tampa Municipal Hosp	Gen	City	160	111	25	0	5	0	0
Tampa Negro Hospital	Gen	City	11	16	1	0	0	0	0
West Palm Beach, 26,610—Palm Beach Co	Gen	Indep	125	50	14	4	8	1	1
Good Samaritan Hospital	Gen	Indep	15	15	10	0	0	0	427
Pine Ridge Hospital (col)	Gen	Indep							
Related Institutions									
Brookville, 1,405—Hernando Co	Gen	Indep	12	4	2	0	2	0	675
Hernando General Hospital	Gen	Indep							
1st Myers, 9,082—Lee Co	Gen	Indep	7	1	0	1	0	0	60
Longs Walker Hosp (col)	Gen	Indep							
Gainesville, 10,465—Alachua Co	Gen	Indep							
Florida Farm Colony for	Men	DefState	515	475	0	0	0	0	0
Phileptic and Feeble-minded	Men	DefState							
Jacksonville, 129,540—Duval Co	Gen	Indep	24	20	0	0	2	0	0
Hope Haven Tuberculosis	Gen	Indep	8	5	0	0	0	0	0
Preventorium	Gen	Indep							
Rollins Hosp for Women	Gen	Indep							
Tarzo, 1,429—Pinellas Co	Gen	Indep							
Pinellas County Home (T.H. Unit)	Gen	Indep	12	10	0	2	0	0	0
Miami, 110,637—Dade Co	Gen	Indep	18	8	0	2	0	0	0
Christian Hospital (col)	Gen	Indep	51	New	0	0	0	0	0
Sun Ray Sanitarium	Gen	Indep							
Ocala, 7,281—Marion Co	Gen	Indep							
Florida Industrial School for Girls	Inst	State	10	4	0	1	0	0	0
Orange Park, 661—Clay Co	Inst	Frnt	36	32	0	1	0	1	160
Moosheaven Hospital	Inst	Frnt							
Rafford 460—Union Co	Inst	Frnt							
Florida State Farm Hosp	Gen	State	45	17	0	0	0	0	0
St Petersburg, 40,425—Pinellas Co	Gen	State							
American Legion Hospital for Crippled Children	Ortho	Indep	70	15	0	2	103	0	0
Stuart, 1,924—Martin Co	Gen	Indep	12	5	3	0	2	115	0
St Lucie Sanitarium	Gen	Indep							
Tallahassee, 10,700—Leon Co	Gen	Indep							
Florida Agricultural and Mechanical College Hospital (col)	Inst	State	47	6	1	0	0	0	0
Tampa, 101,161—Hillsborough Co	Gen	Frnt	60	12	2	0	2	246	0
Centro Espanol Sanat	Gen	Frnt							
Children's Home	Inst	Indep	14	7	0	0	0	0	0
Hillsboro County Tuberculosis Sanatorium	TB	County	60	45	0	0	0	0	0
Mills Hospital	N&M	Indiv	12	5	0	0	0	0	0
Pine Heath Preventorium	TB	Indep	24	20	0	1	0	0	0
Roselawn Sanitarium	N&M	Indiv	22	7	0	0	0	0	0
Tampa Sanitarium	Gen	Indiv	10	2	0	0	0	0	0
Vero Beach, 2,268—Indian River Co	Gen	Indiv	12	2	5	0	3	58	0
Indian River Hospital	Gen	Indiv							
Winter Haven, 7,180—Polk Co	Gen	Indep	17	4	5	0	0	0	0
Winter Haven General Hosp	Gen	Indep							

Summary for Florida

	Number	Beds	Average Patients	Patients Admitted
Hospitals and sanatoriums	68	7,091	5,820	56,541
Related Institutions	21	1,019	703	3,248
Totals	91	8,110	6,522	60,089
Refused registration	15	267		

GEORGIA

Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Albany, 14,507—Dougherty Co	Gen	Indep	40	18	4	6	3	654	0
Phoebe Putney Memorial Hospital	Gen	Indep							
Alto, 219—Habersham Co	Gen	Indep	361	268	0	21	398	0	0
State Tuberculosis Sanat	TB	State							
Americus, 8,760—Sumter Co	Gen	Indep	25	8	4	0	3	345	0
Americus and Sumter County Hospital	Gen	Indep	50	17	8	0	7	105	0
Americus Colored Hospital	Gen	Indep							
Athens, 18,192—Clarke Co	Gen	County	50	10	10	8	9	737	0
Athens General Hospital	Gen	County							
Fairhaven Tuberculosis Sanitarium	TB	Indep	36	22	0	1	68	0	0
St Mary's Hospital	Gen	Indiv	25	10	4	2	2	471	0
Atlanta, 360,691—Fulton Co	Gen	Indiv	30	10	6	8	2	675	0
Atlanta Hospital	Gen	Indiv	226	210	0	1	225	0	0
Battle Hill Sanatorium	TB	Cy&Co	20	10	0	0	3	0	0
Blackman Sanatorium	Gen	Indiv							
Crawford W Long Memorial Hospital	Gen	Indep	142	64	12	34	11	2,651	0
Douglas Infirmary (col)	Gen	Part	22	New	0	0	0	0	0
Georgia Baptist Hosp	Gen	Church	130	05	20	80	0	0	0
Georgia Sanitarium	Gen	Indiv	10	2	2	0	3	35	0
Grady Hospital (White Unit)	Gen	City	265	240	31	100	17	7,011	0
Grady Hospital Emory University Division (Colored Unit)	Gen	City	240	208	33	100	13	6,209	0
Grady Hosp, Albert Steiner Clinic for Cancer and Allied Disease Unit	Gen	City	30	26	0	0	0	0	0
Henrietta Eggleston Hospital for Children	Chil	Indep	50	28	2	0	10	880	0
Piedmont Hospital	Gen	Indep	120	72	15	50	6	2,636	0
St Joseph Infirmary	Gen	Church	120	60	15	45	12	2,015	0
St Mary's Hospital	Mater	Indiv	15	4	18	0	2	0	0

GEORGIA—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Veterans Admin Hospital	Gen	VetAd	200	107					
William A Harris Memorial Hospital (col)	Gen	Indiv	15	6	2	0	3	33	
Augusta, 60,342—Richmond Co	Gen	City	257	180	30	80	0	5,076	
University Hospital**	Mental	VetAd	966	628		0	30	391	
Veterans Admin Hosp	Gen	Indep	50	19	4	13	4	835	
Wilberforce Hospital for Women and Children	Gen	Indiv	32	18		0	12		
Bainbridge, 6,141—Decatur Co	Surg	Part	30	17	4	10	3	364	
Bainbridge Hospital	Gen	City	64	18	8	0	7		
Riverside Hospital	Gen	Indiv	25	5	2	0	4		
Brunswick, 14,022—Glynn Co	Gen	Indep	25	10	2	3	3	549	
Brunswick City Hospital	Gen	Indiv	70	3	2	0		64	
Calro, 3,169—Grady Co	Gen	Indiv	10	1	2	0	1	100	
Calro Hospital	Gen	Indiv	10	2	2	0			
Canton, 2,892—Cherokee Co	Gen	Cy&Co	200	76	9	42	8	2,322	
Coker's Hospital	Gen	Indiv	28	10	3	0		446	
Cedartown, 8,124—Polk Co	Gen	Indiv	36	13	3				
Cedartown Hospital	Gen	Indiv	32	30		0	4	274	
Hall Chaudron Hospital	Gen	Part	25	12	5	0	3	410	
Whitely Hospital	Gen	Indiv	26	13	3	12	1	208	
Columbus, 43,131—Muscogee Co	Gen	Indiv	20	5	2	0	4	428	
Columbus City Hospital	Gen	Cy&Co	16	4	4	0	4	212	
Cuthbert, 3,235—Randolph Co	Gen	Church	135	93	21	78	0	3,722	
Patterson Hospital	Gen	Indep	35	7	4	8	1	42	
Dalton, 8,160—Whitfield Co	Gen	Army	178	175	8	0	18	5,668	
Hamilton Memorial Hospital	Gen	Army	74	34	5	0	8	704	
Decatur, 13,276—De Kalb Co	Gen	Army	100	24		0	0	808	
Scottish Rite Hospital for Crippled Children	Ortho	Frnt	50	10		0	0	18	
Donalsonville, 1,183—Seminole Co	Gen	Indep	52	18	6	24	2	857	
Chanson's Hospital	Gen	Indiv	46	22	5	0	5	712	
Dublin, 6,681—Laurens Co	Gen	Part	10	3	2	0	1	104	
Claxton Sanitarium	Gen	Part	16	8	3	0	4	283	
Eastman, 3,022—Dodge Co	Gen	Indiv	15	6	2	0			
Coleman Sanitarium	Gen	Indiv	15	6	2	0			
Elberton, 4,650—Elbert Co	Gen	City	35	10	0	0	8	607	
Elbert County Hospital	Gen	Cy&Co	24	20		0		41	
Emory University,—De Kalb Co	Gen	Cy&Co	140	118	20	69	7	4,447	
Wesley Memorial Hosp**	Gen	Church	50	21	8	24	4	1,300	
Fitzgerald, 6,412—Ben Hill Co	Gen	Indep	35	15	6	21	3	711	
Fitzgerald Hospital	Gen	Indep	26	11	6	0	5	769	
Ft Benning,—Chattahoochee Co	Gen	Indiv	12	4	1	0	1	80	
Station Hospital	Gen	Indiv	35	9	4	0	1	343	
Ft McPherson, 150—Fulton Co	Gen	Indiv	10	2	2	0	1	76	
Station Hospital	Gen	Indiv	10	2	2	0	1	76	
Ft Oglethorpe, 1,186—Catoosa Co	Gen	Indiv	150	110			3	176	
Station Hospital	Gen	Indiv	40	30	8	0	4		
Ft Screven, 17—Chatham Co	Gen	Indiv	4	630	5,503				
Station Hospital	Gen	Indiv	22	5	4	0	4	267	
Gainesville, 8,624—Hall Co	Gen	Indiv	20	8	4	0			
Downey Hospital	Gen	Indiv	10	5	1	0	3	166	
Griffin, 10,321—Spalding Co	Gen	Indiv	15	8	1	0	2	205	
R F Strickland & Son Memorial Hospital	Gen	Indiv	25	8	4	0	4	74	
Hoselton, 427—Jackson Co	Gen	Indiv	60	11	2	0	6	380	
Allen Clinic and Hospital	Gen	Indiv	50	21	6	24	1	1,27	
Jesup, 2,303—Wayne Co	Gen	Indiv	60	20	10	12	0	1,118	
Drs Colvin Ritch Sanitarium	Gen	Indiv	50	28	8	10	3	894	
Lafayette, 2,809—Walker Co	Gen	Indiv	77	39	12	35	1	1,54	
Lafayette Sanitarium	Gen	Indiv	71	50	14	28	0	1,697	
LaGrange, 20,131—Troup Co	Gen	Indiv	165	160		0	17	1,46	
Dunson Hospital	Gen	Indiv	70	60	6	46	8	000	
Macon, 64,045—Bibb Co	Gen	Indiv	40	30		12		1,299	
Hopewell Sanatorium	Gen	Indiv	65	50	7	10		1,822	
Macon Hospital**	Gen	Indiv	50	28	8	10	3	894	
Middle Georgia Sanatorium	Gen	Indiv	77	39	12	35	1	1,54	
Oglethorpe Private Infirmary	Gen	Indiv	71	50	14	28	0	1,697	
Pumpelly Massenburg Sanat	Gen	Indiv	165	160		0	17	1,46	
St Luke Hospital (col)	Gen	Indiv	70	60	6	46	8	000	
Marletta, 7,638—Cobb Co	Gen	Indiv	40	30		12		1,299	
Marletta Hospital	Gen	Indiv	65	50	7	10		1,822	
Metter, 1,424—Candler Co	Gen	Indiv	50	28	8	10	3	894	
Metter Sanitarium	Gen	Indiv	77	39	12	35	1	1,54	
Milledgeville, 5,534—Baldwin Co	Gen	Indiv	71	50	14	28	0	1,697	
Allen's Invalid Home	N&M	Indiv	165	160		0	17	1,46	
Milledgeville City Hospital	Gen	Indiv	70	60	6	46	8	000	
Milledgeville State Hospital	Mental	State	4	630	5,503				
Millen, 2,527—Jenkins Co	Gen	Indiv	22	5	4	0	4	267	
Millen Hospital	Gen	Indiv	20	8	4	0			
Mulkey Hospital	Gen	Indiv	10	5	1	0	3	166	
Monroe, 3,000—Walton Co	Gen	Indiv	15	8	1	0	2	205	
Walton County Hospital	Gen	Indiv	25	8	4	0	4	74	
Moultrie, 8,027—Colquitt Co	Gen	Indiv	60	11	2	0	6	380	
Edmondson Brannen Hosp	Gen	Indiv	50	21	6	24	1	1,27	
Newnan, 6,386—Coweta Co	Gen	Indiv	60	20	10	12	0	1,118	
Newnan Hospital	Gen	Indiv	50	28	8	10	3	894	
Plains, 609—Sumter Co	Gen	Indiv	77	39	12	35	1	1,54	
Wise Sanitarium	Gen	Indiv	71	50	14	28	0	1,697	
Rome, 21,843—Floyd Co	Gen	Indiv	165	160		0	17	1,46	
Harbin Hospital	Gen	Indiv	70	60	6	46	8	000	
McCall Hospital	Gen	Indiv	40	30		12		1,299	
Sandersville, 3,011—Washington Co	Gen	Indiv	65	50	7	10		1,822	
Rawlings Sanitarium	Gen	Indiv	50	28	8	10	3	894	
Savannah, 85,024—Chatham Co	Gen	Indiv	77	39	12	35	1	1,54	
Central of Georgia Railway Hospital	Indus	Indus	71	50	14	28	0	1,697	
Charly Hospital (col)	Gen	Indiv	165	160		0	17	1,46	
Georgia Infirmary (col)	Gen	Indiv	70	60	6	46	8	000	
Oglethorpe Sanatorium	Gen	Indiv	40	30		12		1,299	
St Joseph's Hospital	Gen	Indiv	65	50	7	10		1,822	
Telfair Hospital	Gen	Indiv	50	28	8	10	3	894	
U S Marine Hospital	Gen	Indiv	77	39	12	35	1	1,54	
Warren A Candler Hosp	Gen	Indiv	71	50	14	28	0	1,697	
Smyna, 1,178—Cobb Co	Gen	Indiv	165	160		0	17	1,46	
Dr Brayner's Sanitarium	Mental	Part	70	60	6	46	8	000	

GEORGIA—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Statesboro 3996—Bulloch Co	Gen	Indiv	25	10	0	2	75		
Van Buren's Sanit (col)	Gen	Indiv	35	24	0				
Stone Mountain 1,335—De Kalb Co	N&M	Indiv	35	24	0				
Stone Mountain Sanitarium	N&M	Indiv	35	24	0				
Summersville 933—Chattooga Co	Gen	Indep	20	0	4	0	2	253	
Summersville-Trion Hospital	Gen	Indiv	20	2	2	0	2	170	
Swainsboro 2442—Emanuel Co	Gen	Indiv	20	2	2	0	2	170	
Franklin's Sanitarium	Gen	Indiv	20	2	2	0	2	170	
Thomasville 11733—Thomas Co	Gen	Indep	103	43	12	16	8	1007	
John D. Archbold Memorial Hospital	Gen	Indep	103	43	12	16	8	1007	
Tifton 3,390—Tift Co	Gen	Part	23	0	2	0		172	
Coastal Plain Hospital	Gen	Part	23	0	2	0		172	
Valdosta 19482—Lowndes Co	Gen	Indiv	22	8	3	0	2	300	
Frank Bird Hospital	Gen	Indiv	43	18	3	20	2	512	
Little Griffin Private Hosp Co	Gen	Indiv	43	18	3	20	2	512	
Washington 3153—Wilkes Co	Gen	Indep	18	2	2	0	2	210	
Washington General Hosp	Gen	Indep	18	2	2	0	2	210	
Waycross 15010—Ware Co	Indus	Indus	75	41	0	10	1,122		
Atlantic Coast Line Hospital	Indus	Indus	75	41	0	10	1,122		
Ware County Hospital	Gen	County	62	New	8	0	11		
Related Institutions									
Adel 1796—Cook Co	Gen	Part	7	1	0				
Adel Hospital	Gen	Part	7	1	0				
Atlanta 360601—Fulton Co	N&M	Indiv	12	0	0				
Brook Haven Manor Sanat	City	Indiv	40	16	0	4	260		
Coastal Georgia Disease Hospital	Inst	Indiv	7	1	16	0			
Florence Crittenton Home	Fed	Indiv	179	127	0	4	1765		
U S Penitentiary Hosp	City	Indiv	75	70	0	1	615		
Venerable Hosp and Clinic	Vener	City	75	70	0	1	615		
Cartersville 5,250—Bartow Co	Gen	Indiv	8	2	0	0			
Dr Lowry's Emergency Hosp	Gen	Indiv	8	2	0	0			
Cave Spring 723—Floyd Co	Inst	State	30	5	0	1	545		
Georgia School for the Deaf	Inst	State	30	5	0	1	545		
Columbus 43131—Muscookee Co	TB	County	30	20	0				
Muscookee County Tuberculo-	TB	County	30	20	0				
Sanatorium	TB	County	30	20	0				
Cordele 6,880—Crisp Co	Gen	Part	11	4	0	4	147		
Cordele Sanatorium	Gen	Part	11	4	0	4	147		
Gillespie Hospital (col)	Gen	Church	10	2	0	1	152		
Gracewood 91—Richmond Co	MenDef	State	250	250	0				
Georgia Training School for	MenDef	State	250	250	0				
Mental Defectives	MenDef	State	250	250	0				
Millidgeville 5,634—Baldwin Co	Inst	State	50	30	0	1	100		
Georgia State Penitentiary	Inst	State	50	30	0	1	100		
General Hospital	Inst	State	50	30	0	1	100		
Georgia State Penitentiary	Inst	State	50	30	0	1	100		
Tuberculosis Hospital	Inst	State	50	30	0	1	100		
Moultrie 8,027—Colquitt Co	Gen	Indiv	0	4	1	0	1	158	
Daniel Emergency Sanit	Gen	Indiv	0	4	1	0	1	158	
Savannah 85,024—Chatham Co	TB	Indep	12	12	0	1	38		
Kiwaals Sunshine Unit of	TB	Indep	12	12	0	1	38		
Chatham Savannah Tuber-	TB	Indep	12	12	0	1	38		
culosis Association	TB	Indep	12	12	0	1	38		
Statesboro 3,996—Bulloch Co	Gen	Part	24	5	2	0			
Statesboro Hospital	Gen	Part	24	5	2	0			
Warm Springs 400—Meriwether Co	Ortho	Indep	80	70	0	2			
Hydrotherapeutic Center	Ortho	Indep	80	70	0	2			
Georgia Warm Springs	Ortho	Indep	80	70	0	2			
Foundation	Ortho	Indep	80	70	0	2			
Summary for Georgia									
Hospitals and sanatoriums	Number	Beds	Average Patients	Patients Admitted					
Related institutions	94	12,252	0,648	84,661					
	18	918	625	5,716					
Totals	112	13,170	10,273	90,377					
Refused registration	1	25							

IDAHO

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
American Falls 1280—Power Co	Gen	County	16	6	4	0	3	208	
Schultz Memorial Hospital	Gen	County	16	6	4	0	3	208	
Blackfoot 3109—Bingham Co	Gen	Indiv	15	10	0				
Blackfoot General Hospital	Gen	Indiv	15	10	0				
Boise 21,544—Ada Co	Gen	Church	124	61	10	45	0	1931	
St Alphonsus Hospital	Gen	Church	100	73	14	39	8	1114	
St Luke's Hospital	Gen	Church	100	73	14	39	8	1114	
Veterans Admin Hospital	Gen	Church	205	160	0	0	1	1111	
Bonners Ferry 1418—Boundary Co	Gen	Indep	25	5	4	0	3	258	
Bonners Ferry Hospital	Gen	Indep	25	5	4	0	3	258	
Burley 3,550—Cassia Co	Surg	Indiv	10	2	0	2			
Transtad Hospital	Surg	Indiv	10	2	0	2			
Court View 8297—Kootenai Co	Gen	Indiv	14	8	4	0	1	222	
Lakeside Hospital	Gen	Indiv	14	8	4	0	1	222	
Cottonwood 519—Idaho Co	Gen	Church	15	9	4	0	2	260	
Our Lady of Consolation	Gen	Church	15	9	4	0	2	260	
Hospital	Gen	Church	15	9	4	0	2	260	
11 Hall 10—Bingham Co	Gen	Indian	14	7	6	0	2	34	
11 Hall Indian Agency Ho-	Gen	Indian	14	7	6	0	2	34	
pital	Gen	Indian	14	7	6	0	2	34	
Coodina 129—Coodina Co	Gen	City & Co	13	4	0	0	2	21	
Coodina County Hospital	Gen	City & Co	13	4	0	0	2	21	
Hilly 2—Blaine Co	Gen	Indiv	15	4	6	0	1	119	
Hilly Clinical Hospital	Gen	Indiv	15	4	6	0	1	119	
Idaho Falls 1,429—Bonanza Co	Gen	Church	22	5	15	42	7	252	
Idaho Falls 1,429—Butter Day	Gen	Church	22	5	15	42	7	252	
Salts 110—Idaho Co	Gen	Indiv	15	6	6	0	3	14	
Salts 110—Idaho Co	Gen	Indiv	15	6	6	0	3	14	

IDAHO—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Kellogg, 4,124—Shoshone Co	Gen	Indiv	18	5	2	0	4		202
Wardner Hospital									
Lapwal 416—Nez Perce Co	TB	Indian	132	132		0	5		120
Ft Lapwal Tuberculosis Sanatorium School									
Lava Hot Springs 544—Bannock Co	Gen	City	20	1	2	0	2		55
Lava Hot Springs Municipal Sanitarium	Gen	City	20	1	2	0	2		55
Lewiston 9403—Nez Perce Co	Gen	Church	86	40	14	23	1	1	1080
St Joseph's Hospital	Gen	Church	28	23	4	4	8		435
White Hospital	Gen	Indiv	30	10	5	0	3		420
Montpelier 2430—Bear Lake Co	Gen	Indiv	30	10	5	0	3		420
Montpelier Hospital	Gen	Indiv	30	10	5	0	3		420
Moscow, 4,476—Latah Co	Gen	Indiv	25	0	5	0	3		210
Gritman Private Hospital	Gen	Indiv	15	4	4	0	2		200
Inland Empire Hospital	Gen	Indiv	15	4	4	0	2		200
Nampa 8206—Canyon Co	Gen	Church	40	10	6	13	4		461
Mercy Hospital	Gen	Church	40	10	6	13	4		461
Nazarene Missionary Sanitarium and Institute	Gen	Church	44	22	5	14	5	1	1523
Orofino 1078—Clearwater Co	Gen	Part	30	12	4	0	3		246
Orofino Hospital	Gen	Part	30	12	4	0	3		246
Pocatello 16471—Bannock Co	Gen	Cy & Co	65	31	15	22	5	1	1642
Pocatello General Hospital	Gen	Church	40	18	10	15	3		792
St Anthony Mercy Hospital	Gen	Church	40	18	10	15	3		792
Potlatch 1500—Latah Co	Gen	Indep	20	12	3	0	2		213
Potlatch Hospital	Gen	Indep	20	12	3	0	2		213
Preston 3381—Franklin Co	Gen	Indep	15	6	4	0	2		406
General Memorial Hospital	Gen	Indep	15	6	4	0	2		406
Priest River, 940—Bonner Co	Gen	Part	20	1	2	0			
Priest River Hospital	Gen	Part	20	1	2	0			
Reynolds 3048—Madison Co	Gen	Indiv	12	5	2	0	0		137
Emergency Hospital	Gen	Indiv	12	5	2	0	0		137
Reynolds General Hospital	Gen	Indiv	12	5	2	0	0		137
St Maries 1096—Benewah Co	Gen	Part	33	8	3	0	3		109
St Maries Hospital	Gen	Part	33	8	3	0	3		109
Sandpoint 8290—Bonner Co	Gen	Indiv	30	2	0	0	0		97
Pace Hospital	Gen	Indiv	30	2	0	0	0		97
Parnell Hospital	Gen	Indiv	10	4	2	0	1		41
Shoshone 1211—Lincoln Co	Gen	Indiv	15	3	0				110
Shoshone Benevolent Hospital	Gen	Indiv	15	3	0				110
Soda Springs 831—Caribou Co	Gen	County	26	10	2	0	4		463
Caribou County Hospital	Gen	County	26	10	2	0	4		463
Spirit Lake 1241—Kootenai Co	Gen	Part	10	1	2	0	1		30
Spirit Lake Hospital	Gen	Part	10	1	2	0	1		30
Twin Falls, 8787—Twin Falls Co	Gen	County	50	42	10	0	11	1	1453
Twin Falls County General Hospital	Gen	County	50	42	10	0	11	1	1453
Wallace 8634—Shoshone Co	Gen	Church	50	21	8	0	5		753
Providence Hospital	Gen	Church	50	21	8	0	5		753
Wallace Hospital	Gen	Church	50	21	8	0	5		753
Wendell 725—Gooding Co	Gen	Church	25	10	5	0	3		424
St Valentine's Hospital	Gen	Church	25	10	5	0	3		424
Related Institutions									
Blackfoot, 3109—Bingham Co	Gen	Indiv	7	2	2	0	2		134
Dr W W Beck Hospital	Gen	Indiv	7	2	2	0	2		134
State Hospital South	Mental	State	469	421	0	0	0		123
Boise 21544—Ada Co	Iso	City	10			0	0		4
Boise City Detention Hospital	Iso	City	10			0	0		4
Idaho State Soldiers Home	Inst	State	27	10		0	0		50
Hospital	Inst	State	27	10		0	0		50
Salvation Army Women's Home and Hospital	Mater	Church	8	3	20	0	1		74
Ft Hall 190—Bingham Co	Gen	Indian	16	10		0			
Ft Hall Indian School Hospital	Gen	Indian	16	10		0			
Malad City 2,535—Oneida Co	Gen	Indep	7	2	2	0	1		
Community Hospital	Gen	Indep	7	2	2	0	1		
Moscow 4476—Latah Co	Inst	State	15	7		0	3		403
University of Idaho Infirmary	Inst	State	15	7		0	3		403
Nampa 8206—Canyon Co	MenDef	State	451	363		0	0		103
State School and Colony	MenDef	State	451	363		0	0		103
Orofino, 1078—Clearwater Co	Mental	State	350	331		0	0		65
State Hospital North	Mental	State	350	331		0	0		65
St Anthony 2778—Fremont Co	Inst	State	20	5		0			
Idaho Industrial Training School	Inst	State	20	5		0			
St Maries 1,096—Benewah Co	Gen	Indiv	10	2	2	0	1		
Dr Platt's Hospital	Gen	Indiv	10	2	2	0	1		
Salmon 1,371—Lemhi Co	Gen	Part	0	1	3	0			68
Salmon General Hospital	Gen	Part	0	1	3	0			68
Summary for Idaho									
Hospitals and sanatoriums	Number	Beds	Average Patients		Patients Admitted				
Related institutions	42	1,630	602		23,372				
	13	1,293	1,159		1,029				
Totals	55	2,923	2,061		24,401				
Refused registration	3	104	2061		24401				

ILLINOIS									
Hospitals and Sanatoriums	Type of Service	Control	Beds Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Alton 30131—Madison Co									
Alton State Hospital	Mental	State	1,500	1,446					
St Anthony's Infirmary and Sanitarium	Gen	Church	90	60		5	4		255
St Joseph's Hospital	Gen	Church	75	30		12	3	15	266
Amboy 4172—Lee Co	Gen	Church	75	30		12	3	9	266
Amboy Public Hospital	Gen	Indep	15	3	3	0	3		135

ILLINOIS—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated	Average Patients	Blankets	Student Nurses	RNs for Nursing	Patients Admitted
Mercy Hospital**	Gen	Church	360	176	35	110	20	3,962
Michael Reese Hospital**	Gen	Indep	553	371	71	270	01	11,227
Misericordia Hospital and Home for Infants**	Mater	Church	17	11	26	0	0	443
Mother Cabrini Memorial Hospital*	Gen	Church	150	82	18	45	11	3,346
Mt Sinai Hospital**	Gen	Indep	160	100	44	84	17	4,314
Municipal Contagious Disease Hospital*	Iso	City	423	242		14	59	4,463
Nancy Adele McIlwhee Memorial Hospital (Orthopedic Department of University of Chicago Clinics)	Gen	Gertrude Dunn Hicks Memorial						
Nelson Morris Hospital (Included in Michael Reese Hospital)	Gen	Indiv	18	7	2	0	1	326
North Avenue Hospital	Gen	Indiv	53	11	3	0		674
Norwegian American Hospital*	Gen	Indep	145	66	50	57	0	3,034
Parkway Sanitarium	N&M	Indep	50	28		0	6	147
Passavant Memorial Hosp**	Gen	Indep	165	97	48	71	25	3,964
Peoples Hospital	Gen	Indiv	53	11	3	0	2	674
Pinel Sanitarium	N&M	Indep	50	14		0	2	183
Post Graduate Hospital and Medical School	Gen	Indep	21	15	2	0	5	1,000
Presbyterian Hospital**	Gen	Church	412	201	50	180	62	10,785
Provident Hospital (col)**	Gen	Indep	50	40	6			
Ravenswood Hospital*	Gen	Indep	153	93	40	72	24	3,690
Research and Educational Hospital**	Gen	State	355	227	25	0		5,128
Roseland Community Hospital**	Gen	Indep	101	65	27	31	5	2,405
St Anne's Hospital**	Gen	Church	234	174	60	102		4,746
St Bernard's Hosp**	Gen	Church	200	103	30	85	13	5,481
St Elizabeth Hospital**	Gen	Church	247	144	40	73	7	3,274
St Joseph Hospital**	Gen	Church	105	97	35	88	24	3,225
St Luke's Hospital**	Gen	Indep	604	376	55	214	25	12,017
St Mary of Nazareth Hospital**	Gen	Church	262	116	33	50	19	3,703
St Vincent's Infant and Maternity Hospital	Mater	Church	41	3	10	23	18	93
Sarah Morris Hospital for Children (Included in Michael Reese Hosp)								
Shriners Hospital for Crippled Children	Ortho	Frat	60	92		0	0	215
South Chicago Community Hospital	Gen	Indep	69	91	15	17	0	1,570
South Shore Hospital	Gen	Indep	100	56	25	45		2,382
Streeter Hospital	Gen	Indiv	50	20	0	0		
Swedish Covenant Hosp**	Gen	Church	185	88	45	69	8	3,188
U S Marine Hospital*	Gen	USPHS	150	153		0	19	9,0
University Hospital**	Gen	Indep	100	53	21	38	0	1,778
University of Chicago Clinics**	Gen	Indep	403	235		0	117	5,943
Washington Blvd Hosp**	Gen	Indep	100	55	10	44		2,012
Washingtonian Home (Included in the Martha Washington Hospital)	Gen	Indep	50	22	10	0	8	6,30
Welles Park Hospital	Gen	Church	229	112	21	94	7	3,941
Wesley Memorial Hosp**	Gen	Indep	142	93	19	45	8	2,520
West Side Hospital	Gen	Indep	100	45	24	0	23	1,014
Women and Children's Hospital*	Gen	Indep	140	74	32	0	35	2,781
Woodlawn Hospital*	Gen	Indep	100	45	24	0	23	1,014
Chicago Heights, 22,321—Cook Co	Gen	Church	100	20	15	0	14	1,894
St James Hospital	Gen	Church	100	20	15	0	14	1,894
Clinton 5,920—De Witt Co	Gen	City	25	12	4	0	3	260
Dr John Warner Hospital	Gen	City	25	12	4	0	3	260
Compton, 277—Lee Co	Gen	Indiv	10	5	2	0		196
Compton Hospital	Gen	Indiv	10	5	2	0		196
Danville, 36,765—Vermilion Co	Gen	Indep	153	69	12	45		2,055
Lake View Hospital	Gen	Indep	153	69	12	45		2,055
St Elizabeth Hospital	Gen	Church	165	50	22	92	13	2,293
Decatur, 57,510—Macon Co	Gen	Indep	103	95	24	55	7	2,118
Decatur and Macon County Hospital**	Gen	Indep	103	95	24	55	7	2,118
Macon County Tuberculosis Sanatorium*	TB	County	80	55		0	5	45
St Mary's Hospital	Gen	Church	131	12		0	15	3,493
Wabash Employees Hosp	Indus	Indus	85	59		0	9	1,463
DeKalb, 8,545—De Kalb Co	TB	County	30	37		0		45
DeKalb County Tuberculosis Sanatorium	TB	City	40	12	12	0	6	500
DeKalb Public Hospital	Gen	Church	40	10	8	0	8	304
St Mary's Hospital	Gen	Church	40	10	8	0	8	304
Des Plaines, 8,798—Cook Co	Gen	Indiv	16	5	5	0	5	204
Northwestern Hospital	Gen	Indiv	16	5	5	0	5	204
Dixon, 6,608—Lee Co	Gen	City	60	27	11	10	0	840
Dixon Public Hospital	Gen	City	60	27	11	10	0	840
Duquoin, 7,593—Perry Co	Gen	Indep	60	16	5	0	4	680
Marshall Browning Hospital	Gen	Indep	60	16	5	0	4	680
Dwight, 2,534—Livingston Co	Gen	VetAd	225	180		0	16	1,712
Veterans Admin Hospital	Gen	VetAd	225	180		0	16	1,712
East Moline, 10,107—Rock Island Co	Mental	State	1,948	1,830		10	8	468
East Moline State Hosp**	Mental	State	1,948	1,830		10	8	468
East St Louis 74,347—St Clair Co	Gen	Church	46	27	0	17	4	848
Christian Welfare Hosp**	Gen	Church	260	125	35	52	4	3,111
St Mary's Hospital*	Gen	Church	260	125	35	52	4	3,111
Edwardsville, 6,235—Madison Co	TB	County	85	77		0	4	105
Madison County Tuberculosis Sanitarium	TB	County	85	77		0	4	105
Effingham, 4,978—Effingham Co	Gen	Church	74	40	0	0	10	802
St Anthony's Hospital	Gen	Church	74	40	0	0	10	802
Elgin 35,929—Kane Co	Mental	State	3,777	3,700		29	11	1,840
Elgin State Hospital	N&M	Indiv	75	40		0	2	600
Resthaven Sanitarium	Gen	Church	130	50	20	38	14	1,560
St Joseph's Hospital	Gen	Church	110	45	20	30	18	2,745
Sherman Hospital	Gen	Indep	110	45	20	30	18	2,745
Filmhurst, 14,065—DuPage Co	Gen	Indep	77	44	18	0	13	1,804
Elmhurst Hospital	Gen	Indep	77	44	18	0	13	1,804
Evanston, 63,938—Cook Co	Gen	Indep	25	5	2	0	2	176
Evanston Community Hospital	Gen	Indep	25	5	2	0	2	176

Key to symbols and abbreviations is on page 911

ILLINOIS—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Franston Hospital**	Gen	Indep	235	118	36	96	24	5,241	5,635
St. Francis Hospital**	Gen	Church	320	112	40	96	17	2,385	
Evergreen Park 1594—Cook Co	Gen	Church	160	45	24	17	17	2,385	
Little Company of Mary Hospital	Gen	Church	160	45	24	17	17	2,385	
Flora 4,833—Clay Co	Gen	Indiv	15	0	4	0	2	107	
Flora Hospital	Gen	Indiv	15	0	4	0	2	107	
Ft. Sheridan 602—Lake Co	Gen	Army	116	60	4	0	11	1,308	
Station Hospital	Gen	Army	116	60	4	0	11	1,308	
Freeport, 22,045—Stephenson Co	Gen	Church	86	41	16	21	6	1,974	
Evangelical Deaconess Hospital	Gen	Church	121	60	10	35	3	1,623	
St. Francis Hospital	Gen	Church	121	60	10	35	3	1,623	
Galesburg 28,830—Knox Co	Gen	Indep	88	36	12	38	3	1,272	
Galesburg Cottage Hosp	Gen	Church	120	51	18	0		1,983	
St. Mary's Hospital	Gen	Church	120	51	18	0		1,983	
Geneseo 3,406—Henry Co	Gen	City	15	2	5	0	3	642	
J. C. Hammond City Hosp	Gen	City	15	2	5	0	3	642	
Geneva 4,607—Kane Co	Gen	Indep	07	36	18	17	4	070	
Community Hospital	Gen	Indep	07	36	18	17	4	070	
Gilman 1,620—Iroquois Co	Gen	Indep	10	3	3	0	1	89	
Gilman Community Hosp	Gen	Indep	10	3	3	0	1	89	
Granite City 25,130—Madison Co	Gen	Church	103	47	22	35	10	1,462	
St. Elizabeth Hospital	Gen	Church	103	47	22	35	10	1,462	
Great Lakes—Lake Co	Gen	Navy	1,076	821	0	46	5	687	
U. S. Naval Hospital	Gen	Navy	1,076	821	0	46	5	687	
Harrisburg, 11,623—Saline Co	Gen	Indep	30	8	1	0		300	
Harrisburg Hospital	Gen	Indiv	30	8	1	0		300	
Lightner Hospital	Gen	Indiv	30	8	1	0		300	
Harvard, 2,988—McHenry Co	Gen	Part	21	7	5	0	3	218	
Harvard Community Hosp	Gen	Part	21	7	5	0	3	218	
Harvey 16,374—Cook Co	Gen	Indep	95	23	25	10	4	1,164	
Ingalls Memorial Hospital	Gen	Indep	95	23	25	10	4	1,164	
Herrin 9,708—Williamson Co	Gen	Part	40	20	5	0	8	666	
Herrin Hospital	Gen	Part	40	20	5	0	8	666	
Highland 3,319—Madison Co	Gen	Church	60	48	0	0	7	1,000	
St. Joseph's Hospital	Gen	Church	60	48	0	0	7	1,000	
Highland Park 12,203—Lake Co	Gen	Indep	53	23	17	0	12	850	
Highland Park Hospital	Gen	Indep	53	23	17	0	12	850	
Hillsboro 4,435—Montgomery Co	Gen	Indep	20	15	5	0	4	377	
Hillsboro Hospital	Gen	Indep	20	15	5	0	4	377	
Hines—Cook Co	Gen	VetAd	1,700	1,388	0	163	0	010	
Veterans Admin Hospital	Gen	VetAd	1,700	1,388	0	163	0	010	
Hinsdale, 6,923—DuPage Co	Gen	Indep	134	45	22	57	12	1,540	
Hinsdale Sanit. & Hosp	Gen	Indep	134	45	22	57	12	1,540	
Jacksonville 17,747—Morgan Co	Gen	Indep	134	45	22	57	12	1,540	
Jacksonville State Hosp	Gen	Indep	134	45	22	57	12	1,540	
Norbury Sanatorium	Gen	Indep	124	73	0	0		183	
Norbury Sanatorium	Gen	Indep	124	73	0	0		183	
Oaklawn Sanatorium	Gen	Indep	124	73	0	0		183	
Our Saviors Hospital	Gen	Church	70	40	15	20		1,283	
Passavant Memorial Hosp	Gen	Church	73	40	12	33	7	1,160	
Jerseyville 4,399—Jersey Co	Gen	Indiv	15	4	5	0	3	100	
Jerseyville Hospital	Gen	Indiv	15	4	5	0	3	100	
Joliet 42,993—Will Co	Gen	Church	192	140	40	50	10	5,220	
St. Joseph's Hospital	Gen	Church	192	140	40	50	10	5,220	
Silver Cross Hospital	Gen	Indep	133	66	17	50	8	2,424	
Will County Tuberculosis Sanitarium	Gen	Indep	133	66	17	50	8	2,424	
Kankakee, 20,020—Kankakee Co	Gen	Church	140	51	12	28	11	1,672	
Kankakee State Hospital	Gen	Church	140	51	12	28	11	1,672	
St. Mary Hospital	Gen	Church	140	51	12	28	11	1,672	
Kenilworth 2,801—Cook Co	Gen	Indiv	32	22	0	1	32		
Kenilworth Sanitarium	Gen	Indiv	32	22	0	1	32		
Kewanee 17,093—Henry Co	Gen	Indep	40	20	12	18	4	514	
Kewanee Public Hospital	Gen	Indep	40	20	12	18	4	514	
St. Francis Hospital	Gen	Church	56	35	11	10	8	780	
La Harpe 1,175—Hancock Co	Gen	Indep	14	4	4	0		121	
La Harpe Hospital	Gen	Indep	14	4	4	0		121	
Lake Forest 0,504—Lake Co	Gen	Indep	42	18	8	0	12	691	
Alice Home Hospital	Gen	Indep	42	18	8	0	12	691	
La Salle 13,140—La Salle Co	Gen	Church	80	40	15	20	6	1,403	
St. Mary Hospital	Gen	Church	80	40	15	20	6	1,403	
Libertyville 3,791—Lake Co	Gen	Indep	25	7	6	0	5	298	
Condell Memorial Hospital	Gen	Indep	25	7	6	0	5	298	
Lincoln 12,835—Logan Co	Gen	Church	52	31	8	21	5	0,7	
Evangelical Deaconess Hospital	Gen	Church	52	31	8	21	5	0,7	
St. Clara's Hospital	Gen	Church	64	35	6	0	6	1,116	
Litchfield 6,012—Montgomery Co	Gen	Church	130	50	8	0	5	2,600	
St. Francis Hospital	Gen	Church	130	50	8	0	5	2,600	
Mackinaw, 700—Tazewell Co	Gen	County	40	43	0	0		60	
Oak Knoll Sanatorium	Gen	County	40	43	0	0		60	
Macomb 8,509—McDonough Co	Gen	Indep	40	22	0	20	4	617	
Marquette Phelps Hospital	Gen	Indep	40	22	0	20	4	617	
St. Francis Hospital	Gen	Church	80	25	10	20	1	1,090	
Manteno 1,149—Kankakee Co	Gen	Indep	40	22	0	20	4	617	
Manteno State Hospital	Gen	Indep	40	22	0	20	4	617	
Mattoon 14,631—Coles Co	Gen	Church	43	20	8	12	4	971	
Memorial Methodist Hosp	Gen	Church	43	20	8	12	4	971	
McLeans Park 10,741—Cook Co	Gen	Indep	54	26	10	11	1	1,110	
Westlake Hospital	Gen	Indep	54	26	10	11	1	1,110	
Minotia 4,000—La Salle Co	Gen	Indiv	20	6	3	0	1	214	
Harris Hospital	Gen	Indiv	20	6	3	0	1	214	
Minonk 1,010—Woodford Co	Gen	Indiv	20	6	3	0	1	214	
Woodford County Tuberculosis Sanitarium	Gen	Indiv	20	6	3	0	1	214	
Moine 32,230—Rock Island Co	Gen	Church	124	40	26	50	10	1,782	
Lutheran Hospital	Gen	Church	124	40	26	50	10	1,782	
Moline Public Hospital	Gen	City	130	40	22	42		1,501	
Monmouth 8,600—Warren Co	Gen	City	30	31	10	20	4	620	
Monmouth Hospital	Gen	City	30	31	10	20	4	620	
Morris 5,000—Grundy Co	Gen	City	30	31	10	20	4	620	
Morris Hospital	Gen	City	30	31	10	20	4	620	
Mt. Vernon 1,200—Jefferson Co	Gen	Indiv	20	20	4				
Mt. Vernon Hospital	Gen	Indiv	20	20	4				
Mowqua 1,400—Shelby Co	Gen	Indiv	25	13	5				
Mowqua Hospital	Gen	Indiv	25	13	5				

ILLINOIS—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated	Capacity	Average Patients	Busshetts	Student Nurses	RNs for Nursing	Patients Admitted
Murphysboro 8182—Jackson Co	Gen	Church	50	6	4	0			977
St Andrew's Hospital									
Naperville, 5,118—DuPage Co	TB	Indep	88	70		0	0		121
Edward Sanatorium									
Normal 6768—McLenn Co	Gen	Church	79	47	15	32	8		2,076
Brokaw Hospital	TB	County	50	40		0	6		35
Fairview Sanatorium									
North Chicago 8466—Lake Co	Mental	VetAd	1,130	1,086		0	5		320
Veterana Admin Hospital									
Onk Forest 50—Cook Co	Gen	County	1,054	1,016		0	0		2,301
Cook County Infirmary									
Cook County Tuberculosis Hospital	TB	County	634	572	2	0	7		720
Oak Park 63,932—Cook Co	Gen	Church	195	91	40	60	7	4	4,447
Oak Park Hospital	Gen	Indep	27	157	100	120	20	6	7,800
West Suburban Hosp									
Olney, 6,140—Richland Co	Gen	Indep	70	41	8	20	7	1	1,494
Olney Sanitarium									
Oregon 2,370—Ogle Co	Gen	Indlv	12	4	6	0	2		147
Oregon Hospital									
Ottawa, 1,094—La Salle Co	TB	County	60	40		0	2		49
Highland	TB	Indlv	51	40		0			70
Ottawa Tuberculosis Sanat	Gen	City	63	35	12	20	5	1	1,270
Ryburn Memorial Hospital									
Pana 5,830—Christian Co	Gen	Chnreh	50	22	10	15	4		647
Humber Memorial Hospital									
Paris 8,781—Edgar Co	Gen	Indlv	20	20	6	15	4		674
Paris Hospital									
Pekin 16,129—Tazewell Co	Gen	Indep	43	12	8	0			651
Pekin Public Hospital									
Peoria 104,969—Peoria Co	Gen	Indep	100	65	15	31	0		2,100
John C Proctor Hospital									
Methodist Hospital of Cen	Gen	Church	187	77	23	84	12		2,715
tral Illinois	N&M	Indlv	20	20		0	1		41
Michell Farm									
Peoria Municipal Tuberculo	TB	City	92	20		0	11		148
sis Sanitarium	N&M	Indlv	20	20		0	1		97
Peoria Sanitarium	Mental	State	2,700	2,610		40	17		4
Peoria State Hospital	Gen	Church	300	100	35	65	20	0	2,600
St Francis Hospital									
Peru 9,121—La Salle Co	Gen	Indep	50	20	10	14	3	1	1,020
Peoples Hospital									
Pinckneyville, 3,046—Perry Co	Gen	Indlv	20	8	3	0			
Hiller Hospital									
Pontiac 8,272—Livingston Co	TB	County	30	10		0	1		84
Livingston County Sanat	Gen	Church	40	20	12	0	8		747
St James Hospital									
Princeton 4,702—Bureau Co	Gen	City	40	21	0	0	3		780
Julia Rackley Perry Memo									
rial Hospital									
Quincy 30,241—Adams Co	TB	County	50	40		0	4		40
Adams County Tuberculosis	Gen	Indep	100	71	22	20	6		2,357
Sanatorium	Gen	Church	190	140	20	34	11		2,369
Blessing Hospital									
St Mary Hospital									
Rantoul 1,555—Champaign Co	Gen	Army	50	21	5	0	0		714
Station Hospital									
Red Bud 1,208—Randolph Co	Gen	Church	22	15	2	0	1		206
St Clement's Hospital									
Robinson 3,668—Crawford Co	Gen	Part	18		4	5	0	1	156
Robinson Hospital									
Rockford 85,864—Winnebago Co	Gen	Indep	92	56	18	50	0	1	1,864
Rockford Hospital									
Rockford Municipal Tubereu	TB	City	121	113		0	13		97
losis Sanatorium	Gen	Church	150	93	50	14	3		723
St Anthony's Hospital	Gen	Indep	80	42	12	34	6	1	1,120
Swedish American Hospital	N&M	Indlv	20	20		0	1		50
Wilgus Sanitarium	Gen	County	105	54	6	0	11	1	1,000
Winnebago County Hosp									
Rock Island 37,903—Rock Island Co	TB	County	60	40		0	4		58
Rock Island County Tubereu	Gen	Church	100	70	10	44	7	1,875	
losis Sanatorium									
St Anthony's Hospital									
Rushville 2,388—Schuyler Co	Gen	Indlv	25	0	5	0	8		231
Culbertson Hospital									
St Charles 5,377—Kane Co	Gen	City	20		7	0	4		183
St Charles City Hospital									
Sandwich 2,611—DeKalb Co	Gen	Indep	26	10	10	0	5		426
Horatio N Woodward Me									
morial Hospital									
Savanna 5,006—Curroll Co	Gen	City	10	4	5	0	3		157
Savanna Public Hospital									
Shelbyville 3,401—Shelby Co	Gen	County	20	9	5	0	3		233
Shelby County Memorial									
Hospital									
Springfield 71,864—Sangamon Co	TB	Indep	75	40		0	2		50
Palmer Sanatorium	Gen	Church	740	408	60	112	62	11	2,555
St John's Hospital	18Orth	Church	320	220			3		240
St John's Sanitarium	Gen	Church	80	50	14	40	8	1	1,784
Springfield Hospital									
Springville 5,270—Bureau Co	Gen	Church	68		7	4	0	1	1,004
St Margaret's Hospital									
Sterling 10,012—Whiteside Co	Gen	City	31	24	12	20	4		1,013
Public Hospital									
Streator 14,720—La Salle Co	Gen	Church	120	70	13	0	20		2,118
St Mary's Hospital									
Sublette 261—Lee Co	Gen	Indlv	10	3	10	0	2		420
Angier Maternity Hospital	Mater								
Sycamore 4,621—DeKalb Co	Gen	City	25	11	10	0	7		401
Sycamore Municipal Ho p									
Taylorville 7,316—Christian Co	Gen	Church	30	11	10	0	1		1,002
St Vincent Hospital									
Urbana 13,000—Champaign Co	Gen	Indep	65	25		0	4		501
Carle Memorial Hospital	Gen	County	50	25	8	0	5		801
Champaign County Ho p	Gen	Church	30	4	12	23	8	1	1,000
Mercy Hospital	TB	County	45	20		0	0		24
The Outlook									

ILLINOIS—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated	Capacity	Average Patients	Basinsets	Student Nurses	RNs for Nursing	Patients Admitted
Vandalia, 4,342—Fayette Co	Gen	Indiv	20	14	0	0	4	408	
Mark Greer Hospital									
Waterman, 520—DeKalb Co	Gen	Indiv	27	11	7	0	1	377	
East Side Hospital									
Watseka, 3,144—Iroquois Co	Gen	County	36	0	8	8	0	735	
Iroquois Hospital									
Waukegan, 3,349—Lake Co	Gen	County	60	40	12	0	10	1,442	
Inke County General Hosp	Gen	County	164	48	10	30	17	1,066	
St. Theresa's Hospital	Gen	Indep	78	37	14	25	7	1,532	
St. Mary's Memorial Hosp									
Victory Memorial Hosp									
White Hall, 2,028—Greene Co	Gen	Indep	10	7	5	0	3	380	
White Hall Hospital									
Winfield, 445—DuPage Co	TB	Indep	120	18	0	0	2	134	
Winfield Sanatorium	TB	Indep	50	32	0	0	1	78	
Zee Sanatorium									
Woodstock, 5,471—McHenry Co	Gen	Indep	26	0	7	0			
Woodstock Public Hospital									
Ziegler, 3,816—Irrankin Co	Gen	Indus	10	4	2	0	2	168	
Ziegler Hospital									
Related Institutions									
Augusta, 1,011—Hancock Co	Gen	Indep	12	New	3	0	3		
Augusta Hospital									
Belleville, 28,425—St. Clair Co	Gen	County	100	70					
St. Clair County Home and Isolation Hospital									
Chatsworth, 851—Livingston Co	Gen	Indiv	8	2	1	0	0	6	
Chatsworth Hospital									
Chicago, 3,376,438—Cook Co	Inst	Church	39	3				278	
Angel Guardian Orphanage									
Beulah Home and Maternity Hospital	Mater	Indep	40	20	24	0		200	
Chicago Home for Convalescent Women and Children	Conv	Indep	56	47		0	3	374	
Chicago Home for Incur	Incur	Indep	283	265		0	1	76	
Chicago Nursery and Half Orphan Asylum	Inst	Indep	17	14		0	2	437	
Church Home for Aged Persons	Inst	Church	0	7		0	0	40	
Home for Aged Jews	Inst	Indep	12	0		0	2	18	
House of Correction and Police Emergency Hosp	Gen	City	75	35	2	0	5	2,078	
Illinois Steel Company Hospital	Indus	Indus	35	10		0	1	22	
Infirmiry of Clearing House, Illinois Emergency Relief Isolation Hospital	Gen	Indep	266	180		0		2,000	
Lawrence Hall	Inst	Church	15	3		0		63	
Marks Nathan Jewish Orphan Home	Inst	Indep	21	5		0	1	230	
Methodist Episcopal Old People's Home	Inst	Church	25	15		0	2	17	
Mylan Sanitarium	N&M	Indiv	26	10		0			
St. Mary of Providence Inst	MenDef	Church	100			0			
Salvation Army Women's Home and Hospital	Mater	Church	50	6	12	0	2	216	
Chicago Heights, 22,321—Cook Co									
Chicago Heights Eye, Ear, Nose and Throat Hospital	EENT	Indiv	5	1		0		160	
Cleero, 66,602—Cook Co	Indus	Indus	12	4		0		365	
Western Electric Co Hosp									
Danville, 36,765—Vermillion Co	Inst	VetAd	500	507		0	32	2,111	
Veterans Admin Home									
Dixon, 9,908—Lee Co	MenDef	State	3,104	2,987		20	9	402	
Dixon State Hospital									
Eldorado, 4,482—Sallne Co	Gen	Indiv	12	5	1	0	1	102	
Ferrell Hospital									
Elgin, 35,629—Kane Co	Chron Dr	Indiv	12	8		0		46	
Dr. Weirick's Sanitarium									
Evanson, 63,338—Cook Co	Chll	Indep	36	90		0	6	271	
Cradle Society	Conv	Indep	35	23		0		229	
Grove House for Conv									
Fairbury, 2,310—Livingston Co	Gen	City	8	3	5	6			
Fairbury Hospital									
Forest Park, 14,555—Cook Co	Inst	Indep	35	35		0	2		
German Old Peoples' Home									
Geneva, 4,607—Kane Co	Inst	State	34	32		0	2	200	
State Training School for Girls									
Godfrey, 201—Madison Co	MenDef	Indep	60	66		0		9	
Beverly Farm									
Henry, 1,658—Marshall Co	Gen	Part	8	4	4	0	1	112	
Drs. Coggeshall and Dysart Hospital									
Hinsdale, 6,923—DuPage Co	Mater	Indep	6	2	10	0	1	53	
West Suburban Home for Girls									
Jacksonville, 17,747—Morgan Co	Inst	State	16	6		0	1	176	
Illinois School for the Blind	Inst	State	46	16		0	3	1,672	
Illinois School for the Deaf									
Joliet, 42,993—Will Co	Inst	State	50	20		0			
Illinois State Penitentiary Hospital									
Knoxville, 1,867—Knox Co	Gen	County	18	7		0			
Knox County Home and Hospital									
LaGrange, 16,163—Cook Co	Inst	Frat	22	4		0			
Illinois Masonic Orphans' Home									
Lincoln, 12,855—Logan Co	MenDef	State	3,450	2,986	50	8		864	
Lincoln State School and Colony									
Mattoon, 14,631—Costa Co	Inst	Frat	56	25		0			
Independent Order Odd Fellows Old Folks Home Hosp									
McLeansboro, 2,162—Hamilton Co	Gen	Indiv	7	2	1	0	1	17	
McLeansboro Hospital									

ILLINOIS—Continued

Related Institutions	Type of Service	Control	Beds, Rated	Capacity	Average Patients	Basinsets	Student Nurses	RNs for Nursing	Patients Admitted
Menard, 22—Randolph Co	Mental State		525	460		0	0	48	
Chester State Hospital									
Southern Illinois Penitentiary Hospital	Inst	State	38	30		0	0	624	
Metropolis, 5,573—Massac Co	Gen	Indiv	6	2	1	6	1	50	
Fisher Hospital									
Mooseheart, 1,510—Kane Co	Chll	Frat	50	30		0	2	2,512	
Mooseheart Hospital									
Mt. Prospect, 1,225—Cook Co	Gen	Indep	20	3	4	6	1	230	
Mt. Prospect General Hosp									
Normal, 6,768—McLean Co	Inst	State	70	15		6	4	1,094	
Soldiers' and Sailors' Children's School									
Paxton, 2,892—Ford Co	Gen	City	24	6	3	6		216	
Paxton Community Hosp									
Peoria, 104,969—Peoria Co	Iso	City	45	2		0	1	32	
Peoria Isolation Hospital									
Ponillac, 8,272—Livingston Co	Inst	State	36	16		0	1	785	
Illinois State Reformatory Hospital									
Quincy, 39,241—Adams Co	Inst	State	225	160		6	12	725	
Illinois Soldiers' and Sailors' Home and Hospital									
St. Charles, 5,377—Kane Co	Inst	State	36	16		0	2	446	
St. Charles School for Boys									
Savanna, 5,086—Carroll Co	Gen	Army	16	3		6	0		
Station Hospital									
Sullivan, 2,339—Moultrie Co	Inst	Frat	60	60		0	6	87	
Illinois Masonic Home									
Toledo, 733—Cumberland Co	Gen	Indiv	5	2	1	6			
Toledo Sanitarium									
Urbana, 13,060—Champaign Co	Inst	State	85	50		0	7	1,275	
McKinley University Hospital									
Wedron, 202—La Salle Co	Conv	Church	60	36		0	4	802	
St. Joseph's Health Resort									
West Chicago, 3,477—DuPage Co	Ortho	Indep	120	60		0	6	186	
Country Home for Convalescent Children									
Whetson, 7,258—DuPage Co	N&M	Part	15	8		0			
Howe Home	N&M	Indiv	40	35		0	3	6	
Mary E. Pogue Sanitarium	Gen	Part	30	10	12	0	4	118	
Whetson Health Resort									
Wheeling, 467—Cook Co	Gen	Indiv	6	1	5	0	1	132	
Wheeling Hospital									
Winnetka, 12,166—Cook Co	Conv	Indep	75	50		0	10	386	
North Shore Health Resort									
Summary for Illinois									
Hospitals and sanatoriums	Number	Beds	Average Patients	Patients Admitted					
Related institutions	273	60,424	46,507	522,136					
	64	10,433	8,570	24,494					
Totals	337	70,857	55,083	546,630					
Refused registration	30	1,341							

INDIANA

Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated	Capacity	Average Patients	Basinsets	Student Nurses	RNs for Nursing	Patients Admitted
Anderson, 30,804—Madison Co	Gen	Church	85	48	15	38	8	1,453	
St. John's Hiekey Memorial Hospital									
Angola, 2,665—Steuben Co	Gen	Indiv	20	9	4	0	1	445	
Cameron Hospital									
Argos, 1,211—Marshall Co	Gen	Indiv	16	6	4	0	1	325	
Kelly Hospital									
Auburn, 5,088—De Kalb Co	Gen	Indiv	26	4	10	0	1	113	
Dr. Bonnell M. Souder Hosp									
Bedford, 13,208—Lawrence Co	Gen	County	25	12	3	0			
Dunn Memorial Hospital									
Beech Grove, 1,552—Marion Co	Gen	Church	192	48	23	0	16	1,487	
St. Francis Hospital									
Bloomington 18 227—Monroe Co	Gen	Indep	35	32	8				
Bloomington Hospital									
Bluffton 5,674—Wells Co	Gen	County	25	11	6	6	4	429	
Wells County Hospital									
Brazil, 8,744—Clay Co	Gen	County	50	16	10	0	8	394	
Clay County Hospital									
Clinton, 7,936—Vermillion Co	Gen	County	34	13	6	0	5	619	
Vermillion County Hospital									
Columbus, 6,936—Bartholomew Co	Gen	County	45	21	5	0	8	860	
Bartholomew County Hosp									
Crawfordsville, 10,355—Montgomery Co	Gen	County	51	22	12	0	11	969	
Culver Hospital									
Crown Point, 4,046—Lake Co	TB	County	106	182		0	7	180	
Lake County Tuberculosis Sanatorium									
Decatur, 5,156—Adams Co	Gen	County	35	6	5	0	8	772	
Adams County Memorial Hospital									
East Chicago, 54,784—Lake Co	Gen	Church	200	64	66	41	11	2,072	
St. Catherine's Hospital									
Elkhart, 32,940—Elkhart Co	Gen	Indep	75	36	16	26	12	1,606	
Elkhart General Hospital									
Flwood, 10,635—Madison Co	Gen	Church	20	17	5	6			
Mercy Hospital									
Evansville, 102,249—Vanderburg Co	TB	County	115	111		6	6	137	
Boehne Tuberculosis Hosp	Mental State		1,200	1,075		0			
Evansville State Hospital	Gen	Indiv	12	3		0	1	36	
Highland Sanitarium									
Protestant Deaconess Hospital	Gen	Church	160	65	21	60		2,761	

INDIANA—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
St Mary's Hospital	Gen	Church	115	78	10	40	8	2	201
U S Marine Hospital	Gen	USPHS	69	60	0	0	0	0	344
Welborn Walker Hospital	Gen	Indep	105	8	6	37	13	1	804
Ft Benjamin Harrison—Marion Co	Gen	Army	100	31	4	0	7	842	
Ft Wayne 114 946—Allen Co	Gen	Army	100	31	4	0	7	842	
Irena Byron Tuberculosis Sanatorium	TB	Counties	180	179	0	0	0	0	203
Lutheran Hospital	Gen	Church	166	102	23	64	7	2	330
Methodist Episcopal Hosp	Gen	Church	112	49	10	44	1	2	240
St Joseph's Hospital	Gen	Church	235	111	57	78	8	6	722
Frankfort 12 196—Clinton Co	Gen	County	42	11	8	0	7	475	
Clinton County Hospital	Gen	County	42	11	8	0	7	475	
Garrett 4 42—DeKalb Co	Gen	Church	45	22	7	0	2	630	
Sacred Heart Hospital	Gen	Church	45	22	7	0	2	630	
Gary, 100 428—Lake Co	Gen	Church	45	22	7	0	2	630	
Cary Hospital	Indus	Indus	100	25	0	0	1	162	
Methodist Episcopal Hosp	Gen	Church	85	42	15	30	1	1600	
St Antonio Hospital	Gen	Indep	50	17	0	0	4	620	
St John Hospital (col)	Gen	Indiv	14	9	6	0	0	112	
St Mary's Mercy Hospital	Gen	Church	216	128	34	55	1	116	
Greencastle 4 617—Putnam Co	Gen	County	35	10	5	0	9	344	
Putnam County Hospital	Gen	County	35	10	5	0	9	344	
Greensburg 5 702—Decatur Co	Gen	County	35	10	5	0	9	344	
Decatur County Memorial Hospital	Gen	County	35	10	5	0	9	344	
Hammond 64 460—Lake Co	Gen	County	35	10	5	0	9	344	
Mount Mercy Sanatorium	N & M	Church	26	18	0	0	1	140	
St Margaret's Hospital	Gen	Church	212	125	35	60	15	1 020	
Hartford City 6 613—Blackford Co	Gen	County	30	9	5	0	0	304	
Blackford County Hospital	Gen	County	30	9	5	0	0	304	
Huntington, 13 420—Huntington Co	Gen	County	25	10	6	0	8	487	
Huntington County Hospital	Gen	County	25	10	6	0	8	487	
Indianapolis 364 161—Marion Co	Gen	County	25	10	6	0	8	487	
Central State Hospital	Mental	State	1 733	1 731	0	0	0	251	
Dr W B Fletcher's Sanat	N & M	Indep	40	15	0	0	1	101	
Indiana Christian Hospital	Gen	Church	100	36	10	0	4	888	
Indianapolis City Hosp	Gen	City	331	415	34	135	70	8 338	
James Whitcomb Riley Hos- pital for Chl (AmI)***	Chl	State	270	211	172	4	3	352	
Methodist Episcopal Hos- pital***	Gen	Church	330	292	61	203	7	12 017	
Norways Sanatorium	N & M	Indep	25	12	0	0	0	0	
Robert W Long Hospital (AmI)***	Gen	State	107	105	Yrs	Yes	2	231	
St Vincent's Hospital	Gen	Church	260	160	35	135	4	476	
Veterans Admin Hospital	Gen	Vet Ad	152	New	0	0	0	20	
William H Coleman Hosp for Women (AmI)***	Mater	State	68	63	Yrs	Yes	2	795	
Jeffersonville 11 946—Clark Co	Gen	County	35	10	5	0	9	344	
Clark County Memorial Hos- pital	Gen	County	35	10	5	0	9	344	
Kendallville 5 439—Noble Co	Gen	City	10	11	12	0	7	371	
Lakeside Hospital	Gen	City	10	11	12	0	7	371	
Kokomo 32 847—Howard Co	Gen	Church	50	21	8	30	1	640	
Good Samaritan Hospital	Gen	Indep	53	16	7	0	8	606	
Howard County Hospital	Gen	Indep	53	16	7	0	8	606	
La Fayette 26 240—Tippecanoe Co	Gen	Indep	135	61	20	0	7	2 105	
La Fayette Home Hospital	Gen	Church	230	112	20	26	11	3 130	
St Elizabeth Hospital	Gen	Church	230	112	20	26	11	3 130	
Wabash Valley Sanitarium and Hospital	Gen	Church	45	21	7	0	7	294	
William Ross Sanatorium	FB	County	45	21	7	0	7	294	
La Porte, 15 735—La Porte Co	Gen	Indep	22	19	8	0	0	717	
Fairview Hospital	Gen	Indep	22	19	8	0	0	717	
Holy Family Hospital	Gen	Church	60	47	15	0	12	1 507	
Lebanon 6 445—Boone Co	Gen	Indep	21	4	4	4	2	140	
Williams Hospital	Gen	Indep	21	4	4	4	2	140	
Witham Memorial Hospital	Gen	County	21	7	5	0	4	441	
Union 5 085—Greene Co	Gen	County	25	0	4	0	4	316	
Freeman Greene County Hosp	Gen	County	25	0	4	0	4	316	
Togansport 18 485—Cass Co	Gen	County	40	23	6	0	7	541	
Cass County Hospital	Gen	County	40	23	6	0	7	541	
Togansport State Hospital	Mental	State	1 140	1 471	0	0	0	36	
St Joseph's Hospital	Gen	Church	15	20	10	0	0	680	
Madison 6 430—Jefferson Co	Gen	Church	30	0	10	0	4	44	
Kings Daughters Hospital	Gen	Church	30	0	10	0	4	44	
Marion 24 445—Grant Co	Gen	Indep	25	11	6	17	7	78	
Grant County Hospital	Gen	Indep	25	11	6	17	7	78	
Veterans Admin Ho pital	Mental	Vet Ad	1 400	1 500	0	0	0	372	
Martinsville 4 962—Morgan Co	Gen	County	29	7	6	0	2	297	
Morgan County Memorial Hospital	Gen	County	29	7	6	0	2	297	
Michigan City 26 735—La Porte Co	Gen	Indep	40	20	10	0	4	575	
Clinic Hospital	Gen	Church	100	46	15	0	1	1 111	
St Anthony's Hospital	Gen	Church	100	46	15	0	1	1 111	
Mishawaka 28 670—St Joseph Co	Gen	Church	95	47	20	5	10	1 111	
St Joseph Hospital	Gen	Church	95	47	20	5	10	1 111	
Muncie 46 455—Delaware Co	Gen	Indep	142	85	15	0	2	2 021	
Bull Memorial Hospital	Gen	Indep	142	85	15	0	2	2 021	
New Albany 25 519—Floyd Co	Gen	Church	125	14	0	2	1	1 811	
St Edward's Hospital	Gen	Church	125	14	0	2	1	1 811	
Newcastle 14 027—Henry Co	Gen	County	40	16	5	0	8	459	
Henry County Hospital	Gen	County	40	16	5	0	8	459	
Newcastle Clinic Hospital	Gen	Indep	15	6	2	0	0	1	
Noblesville 4 511—Hamilton Co	Gen	County	70	15	6	0	4	45	
Hamilton County Hos pital	Gen	County	70	15	6	0	4	45	
North Madison 5 775—Jefferson Co	Gen	County	70	15	6	0	4	45	
Madison State Hospital	Mental	State	1 500	1 521	0	0	0	254	
Oaklandon 37—Marion Co	Gen	County	21	240	0	8	2	254	
Sunny-side Sanatorium	TB	County	21	240	0	8	2	254	
Iron 12 750—Miami Co	Gen	County	40	15	12	0	6	44	
Dukes Miami County Memo- rial Ho pital	Gen	County	40	15	12	0	6	44	
Wabash Railroad Employees Hospital	Indus	Indus	40	3	0	5	15	15	

INDIANA—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Plymouth 5 230—Marshall Co	Gen	County	24	11	0	0	1		458
Marshall County Hospital	Gen	Part	15	0	0	0	1		609
Portland 5 276—Jny Co	Gen	Indep	12	0	3	0	4		305
Jay County Hospital	Gen	Indep	12	0	3	0	4		305
Princeton 7 505—Gibson Co	Gen	Church	30	15	5	7	3		381
Methodist Episcopal Hosp	Gen	Church	30	15	5	7	3		381
Rensselaer 2 798—Jasper Co	Gen	County	28	10	8	0			
Jasper County Hospital	Gen	County	28	10	8	0			
Richmond 32 493—Wayne Co	Gen	Indep	124	0	22	31	1	2	342
Reid Memorial Hospital	Gen	Indep	124	0	22	31	1	2	342
Richmond State Hospital	Mental	State	1 232	1 222	0	0	0		169
Rocheater 3 518—Kulton Co	Gen	Indiv	14	10	4	0	1		418
Woodlawn Hospital	Gen	Indiv	14	10	4	0	1		418
Rockville 1 832—Parke Co	TB	State	200	105	0	0	0		205
Indiana State Sanatorium	TB	State	200	105	0	0	0		205
Rushville 5 709—Rush Co	Gen	City	10	5	2	0	2		177
Rushville City Hospital	Gen	City	10	5	2	0	2		177
Seymour 7 503—Jackson Co	Gen	Indep	20	15	3	0	3		640
Sebebeck Memorial Hospital	Gen	Indep	20	15	3	0	3		640
Shelbyville 10 618—Shelby Co	Gen	City	40	14	4	0	7		352
W S Major Hospital	Gen	City	40	14	4	0	7		352
South Bend 104 103—St Joseph Co	Gen	Indep	150	83	37	48	7	2	430
Ipworth Hospital	Gen	Indep	150	83	37	48	7	2	430
Healthwin Hospital	TB	County	155	105	0	0	10		266
Pennington Sanitarium	N & M	Part	18	5	0	0	0		48
St Joseph Hospital	Gen	Church	153	73	22	45	17	2	180
Sullivan 5 306—Sullivan Co	Gen	County	50	14	7	0	5		630
Mary Sherman Hospital	Gen	County	50	14	7	0	5		630
Tell City 4 871—Perry Co	Gen	Indiv	10	1	3	0	2		254
Parkview Hospital	Gen	Indiv	10	1	3	0	2		254
Terre Haute 62 810—Vigo Co	Gen	Indiv	10	1	2	0	1		400
Hoover's Sanatorium (col)	Gen	Indiv	10	1	2	0	1		400
St Anthony's Hospital	Gen	Church	169	67	23	35	0	2	230
Union Hospital	Gen	Indep	138	85	21	65	0	2	897
Union City 7 034—Randolph Co	Gen	Indiv	13	7	4	0	4		285
Union City Hospital	Gen	Indiv	13	7	4	0	4		285
Valparaiso 8 070—Porter Co	Gen	Indep	18	8	8	0	4		322
Christian Hospital	Gen	Indep	18	8	8	0	4		322
Vincennes 17 604—Knox Co	Gen	County	92	38	7	22	5	1	221
Good Samaritan Hospital	Gen	County	92	38	7	22	5	1	221
Wabash, 8 840—Wabash Co	Gen	County	35	0	6	0	4		312
Wabash County Hospital	Gen	County	35	0	6	0	4		312
Warsaw 5 730—Kosciusko Co	Gen	Indiv	18	8	4	0	1		470
McDonald Hospital	Gen	Indiv	18	8	4	0	1		470
Washington 9 070—Davies Co	Gen	Indep	50	16	5	0	4		785
Davies County Hospital	Gen	Indep	50	16	5	0	4		785
Winchester 4 487—Randolph Co	Gen	County	26	11	4	0	5		483
Randolph County Hospital	Gen	County	26	11	4	0	5		483
Wolfake 367—Noble Co	Gen	Part	18	0	4	0	3		237
Luckey Hospital	Gen	Part	18	0	4	0	3		237
Related Institutions									
Anderson 39 804—Madison Co									
Ellis B Kehrler Hospital	TB	County	50	35	0	1		75	
Butler 4 40—Jennings Co	MenDef	State	450	422	0	0		113	
Muscatauck Colony	MenDef	State	450	422	0	0		113	
Dillsboro 402—Dearborn Co	Gen	Indep	50	9	0	0			
Dillsboro Sanitarium	Gen	Indep	50	9	0	0			
Ft Wayne 114 946—Allen Co	Inst	Church	18	4	0	0			
Concordia College Hospital	Inst	Church	18	4	0	0			
Ft Wayne and Allen County Isolation Hospital	Iso	Cy & Co	10	0	0	0		20	
Ft Wayne State School	MenDef	State	1 500	1 570	0	0	2	140	
Grace Convalescent Hospital	Conv	Indiv	19	10	0	0	0	21	
Hopewell Sanitarium	Conv	Indiv	19	10	0	0	0	21	
Franklin 5 682—Johnson Co	Inst	Frat	74	60	0	0			
Eastern Star Hospital	Inst	Frat	74	60	0	0			
Greencastle 4 617—Putnam Co	Inst	State	20	2	0	0	0	796	
Indiana State Farm Hosp	Inst	State	20	2	0	0	0	796	
Greensburg 5 702—Decatur Co	Inst	Frat	100	60	0	0			
Longley Hospital	Inst	Frat	100	60	0	0			
Indianapolis 264 101—Marion Co									
Florence Crittenton Home	Mater	Indep	22	15	21	0		61	
Indiana Girls School	Inst	State	14	4	0	0		18	
Indianapolis Orphan Asylum	Inst	Indep	18	10	0	1		140	
Indiana State School for the Deaf	Inst	State	30	4	0				
Indiana Woman's Prison	Inst	State	10	10	0	1			
Julietta Insane Hospital	Mental	County	330	12	0	0	1	10	
Knightsdown 2 200—Henry Co									
Indiana Hullers and Soldiers Children's Home	Inst	State	35	0	0	0		575	
La Fayette 26 240—Tippecanoe Co									
Indiana State Soldiers Home Hospital	Inst	State	200	120	0	3		406	
La Grange 1 640—La Grange Co	Gen	Indiv	6	1	2	0		91	
Erwin Hospital	Gen	Indiv	6	1	2	0		91	
Michigan City, 26 73—La Porte Co									
Indiana Hospital for Insane Criminals	Mental	State	254	242	0	0	24		
Indiana State Prison Hosp	Inst	State	102	52	0	0			
Mooreville 1 910—Morgan Co									
Mooreville Sanitarium	Proct	Indiv	20	15	0				
Newcastl 14 027—Henry Co									
Indiana Village for Epileptics	Epil	State	834	744	0				
Penitentiary 1 325—Madison Co									
Indiana State Reformatory Hospital	Inst	State	101	33	0		1	166	
Plainfield 1 617—Hendricks Co									
Indiana Boys School Hosp	Inst	State	20	5	0			65	
South Bend 104 155—St Joseph Co									
Children's Dispensary and Hospital	Chil	Indep	7	4	0			22	

IOWA—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated	Average Patients	Blankets	Student Nurses	Rs for Nursing	Patients Admitted
Emmetsburg, 2,865—Palo Alto Co	Gen	Indep	14	6	2	0	3	244
Palo Alto Hospital	Gen	Indiv	20	7	3	4	1	305
Eatherville, 4,040—Emmet Co	Gen	Indiv	25	12	6	0	2	407
Blrney Hospital	Gen	County	24	10	6	0	7	789
Coleman Hospital	Gen	Indiv	13	6	5	0	3	412
Fairfield, 0,019—Jefferson Co	Gen	Army	60	18		0	0	827
Jefferson County Hospital	Gen	Church	110	24	19	0	15	806
Forest City, 2,016—Winnebago Co	Gen	Church	114	04	16	35	10	2,122
Drs Irish and Irish Hosp	Indus	Indus	60	17		0	3	356
Ft Des Moines, 700—Polk Co	Gen	Church	60	20	12	0	5	1,100
St Joseph Mercy Hosp	Gen	Indep	54	14	6	0	6	538
St Madison, 13,779—Lee Co	Gen	Church	40	16	8	0	6	474
A T & S Ry Hosp	Gen	Indiv	18	10	0	0	2	2,405
Sacred Heart Hospital	Gen	Church	40	23	8	8	2	015
Grinnell, 4,040—Poweshiek Co	Gen	Indiv	11	2	3	0	3	689
Grinnell Community Hosp	Gen	Indiv	12	4	2	0	2	286
St Francis Hospital	Gen	Part	12	4	5	0	2	75
Hamburg, 2,103—Tremont Co	Gen	Indep	15	7	2	0	2	323
Hamburg Hospital	Gen	Part	12	4	3	0	3	123
Hampton, 3,473—Franklin Co	Mental	State	1,577	1,480		27	2	308
Lutheran Hospital	Gen	Indep	26	6	6	0	3	380
Harlan, 3,145—Shelby Co	(Included in University Hospitals)							
Harlan Hospital	Mental	State	60	42			8	315
Hartley, 1,272—O'Brien Co	Gen	Church	85	4	16	30		1,191
Hand Hospital	Gen	State	054	608	54	170	102	12,937
Hawarden, 2,470—Sioux Co	Gen	City	18	6	6	0	5	844
Hawarden Hospital	Gen	Indep	75	40	10	24		1,068
Hull, 605—Sioux Co	Gen	Church	120	65	15	30		1,686
Hull Hospital	Mental	Vet Ad	851	808		0	30	248
Ida Grove, 2,206—Ida Co	Gen	Part	25	13	8	0	2	457
Ida Grove General Hospital	Gen	Indiv	12	8	5	0	1	270
Independence, 3,601—Buchanan Co	Gen	Church	50	32	10	25	6	1,087
Independence State Hosp	Gen	Indiv	25	5	4	0		
Peop's Hospital	Gen	Indiv	18	11	2	0	3	283
Iowa City, 15,340—Johnson Co	Gen	Church	125	63	16	64	6	1,942
Children's Hospital	Gen	Church	57	25	8	21	5	790
Iowa State Psychopathic Hospital	Gen	Indep	48	25	12	21	4	1,039
Mercy Hospital	Gen	Church	67	54	10	42	11	1,470
University Hospitals	Gen	Part	10	5	3	0	1	141
Iowa Falls, 4,112—Hardin Co	Gen	County	20	10	5	0	6	314
Elsworth Hospital	Gen	County	1,500	1,402		10	1	530
Keokuk, 15,106—Icc Co	Gen	Indiv	25	0	4	0	4	328
Graham Protestant Hosp	Gen	Indep	50	16	0	0	7	774
St Joseph's Hospital	Gen	Church	40	25	5	4	5	472
Veterans Admin Hospital	Gen	Church	51	10	0	0	12	738
Lake City, 2,012—Cahoon Co	Gen	Indiv	20	10	4	0	1	285
Lake City General Hospital	Gen	Part	30	12	7	0	2	
McVay Memorial Hospital	Gen	Indiv	15	3	2	0	1	55
Le Mars, 4,788—Plymouth Co	Gen	Indiv	20	10	4	0	1	285
Sacred Heart Hospital	Gen	Indiv	15	3	2	0	1	55
Manning, 1,817—Carroll Co	Gen	Indiv	20	10	4	0	1	285
Wyatt Memorial Hospital	Gen	Indiv	18	11	2	0	3	283
Maquoketa, 3,505—Jackson Co	Gen	Church	125	63	16	64	6	1,942
City Memorial Hospital	Gen	Church	57	25	8	21	5	790
Marshalltown, 17,373—Marshall Co	Gen	Indep	48	25	12	21	4	1,039
Evangelical Deaconess Home and Hospital	Gen	Church	67	54	10	42	11	1,

Key to symbols and abbreviations is on page 911

IOWA—Continued

IOWA—Continued								
Hospitals and Sanatoriums	Type of Service	Control	Beds Rated	Capacity	Average Patients	Basinets Student Nurses	RNs for Nursing	Patients Admitted
Postville 1,060—Allamakee Co	Gen	Indlv	21	10	1	0		720
Postville Hospital	Gen	Indlv	12	4	4	0	4	160
Red Oak 5 778—Montgomery Co	Gen	Indlv	14	4	3	0	2	60
Red Oak Hospital	Gen	Indlv	20	2	5	0	1	60
Sheldon 9 320—O'Brien Co	Gen	Indlv	25	2	6	6	1	630
Cram Hospital	Gen	Indlv	18	4	4	0	3	109
Myers Hospital	Gen	Indlv	10	6	4	0	2	200
Shenandoah 6,502—Page Co	Gen	Indlv	11	2	3	0	2	780
Henry and Catherine Hand Hospital	Gen	Indep	12	7	2	0	4	300
Sibley, 1,870—Osceola Co	Gen	Part	70	4	5	0	2	233
Osceola Hospital	Gen	Indlv	82	26	8	28	7	1,080
Sibley Hospital	Gen	Church	30	20	10	18	5	894
Sigourney 2,562—Keokuk Co	Gen	Church	70	46	10	7	1	1,482
Sigourney Hospital	Gen	Church	80	14	6	0	8	028
Sioux City, 79 183—Woodbury Co	Gen	Church	120	68	18	46		2,817
Lutheran Hospital	Gen	Church	180	113	20	80	10	3,975
Methodist Hospital	Gen	Church	120	74	14	32	12	3,346
St Joseph's Mercy Hosp *	Gen	Church	120	74	14	32	12	3,346
St Vincent's Hospital	Gen	Church	120	74	14	32	12	3,346
Spencer 5 019—Clay Co	Gen	Indep	12	7	2	0	4	300
Spencer Hospital	Gen	Indep	12	7	2	0	4	300
Tokoda, 1 820—Tama Co	Gen	Indep	12	7	2	0	4	300
Sac and Fox Tuberculosis Sanatorium	TB	Indian	88	83		0	4	93
Vinton 3 372—Bentoo Co	Gen	Indep	70	4	5	0	2	233
Virginia Gay Hospital	Gen	County	28	18	7	2	5	570
Washington 4,814—Washington Co	Gen	County	82	26	8	28	7	1,080
Washington County Hosp	Gen	County	30	20	10	18	5	894
Waterloo 40 191—Black Hawk Co	Gen	Church	70	46	10	7	1	1,482
Allan Memorial Hospital	Gen	Church	80	14	6	0	8	028
Presbyterian Hospital	Gen	Church	80	14	6	0	8	028
St Francis Hospital	Gen	Church	80	14	6	0	8	028
Waverly 8 652—Bremer Co	Gen	Church	80	14	6	0	8	028
St Joseph Mercy Hospital	Gen	Church	80	14	6	0	8	028
West Union 2,000—Fayette Co	Gen	City	10	5	2	0	2	202
West Union Community Hos pital	Gen	City	10	5	2	0	2	202
Williamsburg 1 210—Iowa Co	Gen	Indlv	15	2	3	0	1	140
Watts Hospital	Gen	Indlv	15	2	3	0	1	140

Related Institutions

Ames 10 251—Story Co									
Iowa State College Hosp	Gen	State	90	10		0	5	804	
Anamosa 3 575—Jones Co									
Reformatory Hospital	Inst	State	61	11		0	0	930	
Belmond, 1 733—Wright Co									
Belmond Hospital	Gen	Indiv	8	2		0	1	155	
Detendorf 2 768—Scott Co									
Masonic Sanitarium	Conv	Frat	30	41		0	3	15	
Burlington, 26 765—Des Moines Co									
Des Moines County Asylum	Mental	County	66	60		0	2	9	
Clarion 2,578—Wright Co									
Tompkins and Walker Hosp	Gen	Part	10	3	2	0	0		
Clinton 25,728—Clinton Co									
Clinton Isolation Hospital	Iso	Cy&Co	9			0	1	8	
Council Bluffs 42 048—Pottawattamie Co									
Christian Home Orphanage	Inst	Indep	7	10	2	0	3	600	
City Isolation Hospital	Iso	City	1	2		0			
Iowa School for the Deaf									
Infirmery	Inst	State	3	10		0	1	388	
Davenport 60 751—Scott Co									
Iowa Soldiers Orphans									
Home Hospital	Inst	State	42	3		0	1	1 820	
St Elizabeths and St Johns									
Hospitals	N&M	Church	140	180		0			
Des Moines 142 550—Polk Co									
Benedict Home	Mater	Indep	20	23	1	0		30	
Broadway's Polk County Pub-									
lic Hospital (Contagious									
Department)	Iso	County	50	10		0	2	234	
Salvation Army Rescue Home									
and Maternity Hospital	Mater	Church	55	4	30	0	1	97	
Dyersville 2 040—Dubuque Co									
Mueller Hospital	Gen	Indiv	6	New	3	0			
Hadora 3,200—Hardin Co									
Iowa Training School for									
Boys Hospital	Inst	State	20	14		0		437	
Hickler 1 352—Clayton Co									
Clayton County Asylum	Mental	County	50	43		0			
Ht Madison 13 770—Lee Co									
Iowa State Penitentiary Hos-									
pital	Iost	State	30	21		0	0	41	
Clenwood 4 960—Mills Co									
Iowa Institution for Feeble									
minded Children	ManDef	State	1 700	1 642		0	2	40	
Holstein 1,000—Iowa Co									
Holstein Hospital	Gen	Indiv	5	1	2	0	1	2	
Indianola 3 485—Warren Co									
Community Hospital	Gen	Indiv	6	2	3	0	1	6	
Iowa City 1 340—Johnson Co									
Rohrbacher Sanitarium	Gen	Indiv	5			0	1		
Leon 2 006—Decatur Co									
Leon Hospital	Energ	Part	6	2		0			
Manchester 3,413—Delaware Co									
Manchester Hospital	Gen	Indiv	7	2		0	0	11	
Marshalltown 17 573—Marshall Co									
Iowa Soldiers Home Hosp	Iost	State	260	12		0	2	2	
Singleton Hospital	F	Indiv	10	4		0	2		
Nason City 23 304—Cerro Gordo Co									
Iowa Old Fellows and Or-									
phans Home Hospital	Gen	Frat	14	11		0	1	7	
Omaha 2 338—Monona Co									
Davis Ho pital	Gen	Indiv	6	3	3	0			
Orange City 1 721—Sioux Co									
Waukegan Ho pital	Gen	Part	6	1		0	2		
Doornink Ho pital	Gen	Indiv	10	1	2	0	0		

IOWA—Continued

IOWA—Continued									
Related Institutions	Type of Service	Control	Beds Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Osage, 2 064—Mitchell Co									
Nasen Hospital	Gen	City	7	2	2	0	2		222
Prughar 962—O'Brien Co									
Ward Memorial Hospital	Gen	Indiv	8	1	1	0			55
Red Oak 5 778—Montgomery Co									
Powell School for Backward and Nervous Children	Men	DefIndiv	60	55		0			
Saylor (Des Moines P O)—Polk Co									
Polk County Hospital for Insane	Mental	County	100	130		0			
Sioux City 79 183—Woodbury Co									
City Detention Hospital	Iso	Cy & Co	18	4		0			175
Toledo 1 825—Tama Co									
Iowa State Juvenile Home Hospital	Inst	State	28	14		0			814
Vinton 3 372—Benton Co									
Iowa School for the Blind	Inst	State	16	7		0			
Waukon 2 526—Allamakee Co									
Hall Hospital	Mater	Indiv	10	1	8	0			49
Rominger & Jeffries Emergency Hospital	Gen	Part	8	2		0			60
Winterset, 2,921—Madison Co									
Winterset Hospital	Gen	Indiv	14	8	5	0	3		325
Woodward 901—Dallas Co									
Hospital for Epileptics and School for Feeble-minded	Men	Def State	1,140	998		0	3		254
Summary for Iowa									
	Number	Beds			Average Patients			Patients Admitted	
Hospitals and sanatoriums	129	14 618			11,366			123,760	
Related Institutions	42	4 231			8 454			8 403	
Totals	171	19 049			14 820			132,165	
Refused registration	16	467							

KANSAS

Hospital, and Sanatoriums	Type of Service	Control	Beds Rated	Capacity	Average Patients	Basinsets	Student Nurses	RNs for Nursing	Patients Admitted
Abilene 5 058—Dickinson Co									
Dickinson County Memorial Hospital	Gen	Indep	21	8	4	0	5	351	
Anthony 2,947—Harper Co									
Galloway Hospital ¹⁰	Gen	Indiv	20	20	9	0	3	800	
Arkansas City 13 946—Cowley Co									
Mercy Hospital	Gen	Indep	50	9	8	0	3	518	
Stricklen Hospital	Gen	Indiv	28	8	5	0	4	259	
Atchison, 13 024—Atchison Co									
Atchison Hospital	Gen	Indep	27	17	7	0	0	635	
Atwood 1 166—Rawlins Co									
Henneberger Hospital	Gen	Indiv	12	4	2	0	1		
Bellefonte, 2,333—Republic Co									
R. G. Patterson Memorial Hospital ¹⁰	Gen	Church	24	10	4	0	4	325	
Beloit 3 502—Mitchell Co									
Community Hospital ¹⁰	Gen	Indep	50	17	10	0	7	621	
Bonner Springs 1,837—Wyandotte Co									
Bonner Springs Sanitarium, N & M	Indiv		25	15	5	2	12		
Chanute 16,277—Neosho Co									
Johnson Hospital ¹⁰	Gen	Indiv	50	23	6	15	4	831	
Coffeyville 16 188—Montgomery Co									
Coffeyville General Hospital	Gen	Indiv	10	5	2	0			
Southeastern Kansas Hosp ¹⁰	Gen	Indep	18	7	3	7	1	350	
Columbus 3 235—Cherokee Co									
Maud Norton Memorial City Hospital	Gen	City	15	4		0	1	161	
Concordia 5 792—Cloud Co									
St Joseph's Hospital ¹⁰	Gen	Church	65	25	10	20	11	731	
Council Grove 2,808—Morris Co									
Council Grove Hospital	Gen	Part	10	5	2	0			
Dodge City 10 032—Ford Co									
Protestant Christian Hosp	Gen	Church	69	16	11	0			
St Anthony Hospital ¹⁰	Gen	Church	80	34	15	24	7	1 344	
Eldorado 10 311—Butler Co									
Susan B. Allen Memorial Hospital ¹⁰	Gen	Indep	44	22	6	20	4	977	
Elkhart, 1 435—Morton Co									
Tucker Hospital ¹⁰	Gen	Indep	25	0	2	0	2		
Ellsworth 2 072—Ellsworth Co									
Ellsworth Hospital ¹⁰	Gen	Indep	35	19	5	19		603	
Emporia 14 667—Lyon Co									
Newman Memorial County Hospital ¹⁰	Gen	County	80	32	14	35	0	1 111	
St Mary's Hospital	Gen	Church	70	45	10	0			
Ft Leavenworth 5 025—Leavenworth Co									
Station Hospital ¹⁰	Gen	Army	142	44	20	0	12	1 946	
Ft Riley 2,610—Geary Co									
Station Hospital ¹⁰	Gen	Army	137	66	8	0	11	2 104	
Ft Scott 10 763—Bourbon Co									
Mercy Hospital ¹⁰	Gen	Church	100	72	10	32	8	1 784	
Garden City 6 121—Finney Co									
Bailey Hospital	Gen	Indiv	10	7	3	0	2	179	
St Catherine's Hospital ¹⁰	Gen	Church	35	26	7	12	5	633	
Girard 2,442—Crawford Co									
Girard General Hospital	Gen	City	10	5	2	0	2	207	
Geessel 116—Marion Co									
Mennonite Bethesda Hospital	Gen	Church	14	7	5	0	3	123	
Goodland, 3 626—Sherman Co									
Boothroy Memorial Hospital	Gen	Church	25	7	3	0	3	246	
Great Bend 5 545—Barton Co									
St Rose Hospital ¹⁰	Gen	Church	67	36	12	23	8	1 235	
Hulkstead 1,275—Harvey Co									
Hulkstead Hospital ¹⁰	Gen	Indep	170	103	2	62		2 200	

Key to symbols and abbreviations is on page 911

KANSAS—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Hays, 4,618—Fillis Co									
Hays Protestant Hospital	Gen	Church	30	11	4	6	5	301	
St Anthony's Hospital	Gen	Church	100	59	22	0	16	1,831	
Holingsworth, 3,001—Barton Co									
Atkin Hospital	Gen	Indiv	14	5	2	0	3		
Horton, 4,049—Brown Co									
Horton Hospital	Gen	Part	15	16	0	0	3	304	
Intehinson, 27,085—Reno Co									
Grace Hospital	Gen	Church	120	58	26	44		2,628	
St Elizabeth's Mercy Hosp	Gen	Church	75	27	12	18	4	771	
Independence, 12,782—Montgomery Co									
Mercy Hospital	Gen	Church	75	37	15	22	6	1,302	
Junction City, 7,467—Gentry Co									
Junction City Municipal Hos	Gen	City	24	14	12	0	6	461	
Kansas City, 121,577—Wyandotte Co									
Bell Memorial Hospital	Gen	State	236	152	26	87	21	4,160	
Bethany Methodist Hosp	Gen	Church	120	85	24	67	7	3,376	
Douglass Hospital (col)	Gen	Church	25	10	2	5	2	377	
Grandview Sanitarium	N&M	Indiv	37	10		6	6	121	
Providence Hospital	Gen	Church	77	52	12	32	1	1,617	
St Margaret's Hospital	Gen	Church	245	16	15	51	13	2,088	
Larned, 3,532—Pawnee Co									
Larned Hospital	Gen	Indep	17	8		0	3	221	
Larned State Hospital	Mutual	State	879	801		6	6	164	
Lawrence, 13,726—Douglas Co									
Lawrence Hospital	Gen	Indep	25	16	2	0	2	41	
Lawrence Memorial Hospital	Gen	City	52	25	16	0	8	1,040	
Leavenworth, 17,466—Leavenworth Co									
Cushing Memorial Hospital	Gen	Indep	55	14	10	17			
St John's Hospital	Gen	Church	55	32	16	24	5	682	
Liberl, 5,294—Seward Co									
Epworth Hospital	Gen	Church	44	31	7	0	8	1,251	
Lincoln, 1,732—Lincoln Co									
City Hospital	Gen	Indiv	10	3	1	0	1	78	
Little River, 618—Rice Co									
Hoffman Memorial Hospital	Gen	City	15	4	3	0	1	70	
Lions, 2,939—Rice Co									
Lions Hospital	Gen	Indep	18	5	4	0	2	172	
Manhattan, 16,176—Riley Co									
Charlotte Swift Memorial	Gen	Indep	35	15	10	15		470	
Park View Hospital	Gen	Indep	35	17	6	13	2	580	
Marysville, 4,013—Marshall Co									
Randell Hospital	Gen	Indiv	10	7	6	0	2		
McPherson, 9,147—McPherson Co									
McPherson County Hosp	Gen	County	40	27	10	29		1,027	
Mulvane, 1,042—Sumner Co									
A T & S F Railway Hosp	Indus	Indus	60	31		0	3	480	
Nashville, 234—Kingman Co									
Nashville Hospital	Gen	Indiv	12	7	1	0	3	270	
Newton, 11,034—Hurvey Co									
Axtell Christian Hosp	Gen	Church	46	28	12	15	3	868	
Bethel Deaconess Hospital	Gen	Church	60	20	12	12	8	836	
Norton, 2,767—Norton Co									
Laird Memorial Hospital	Gen	Church	24	0	7	0	3	354	
State Sanatorium for Tubercu	TB	State	236	243		0	7	221	
Osawatimie, 4,440—Miami Co									
Osawatimie State Hospital	Mental	State	1,500	1,532		32		356	
Ottawa, 9,563—Franklin Co									
Ransom Memorial Hospital	Gen	County	44	18	12	0			
Parsons, 14,003—Labette Co									
Mercy Hospital	Gen	Church	35	15	5	7	3	337	
M K & T Railroad Em	Indus	Indus	53	27		0	6	329	
State Hospital for Epileptics	Epi	State	792	711		6		116	
Pittsburg, 18,145—Crawford Co									
Mt Carmel Hospital	Gen	Church	75	33	5				
Pratt, 6,322—Pratt Co									
Minnesenah Hospital	Gen	Indep	26	11	5	5	1	498	
Quinter, 570—Gove Co									
Quinter Hospital and Sanit	Gen	Indiv	16	5	5	0	3	253	
Ransom, 431—Ness Co									
Mid West Hospital	Gen	Indiv	10	4	5	0			
Sabetha, 2,332—Nemaha Co									
St Anthony Murdock Me	Gen	Church	100	38	15	23	6	1,612	
Salina, 20,155—Saline Co									
Asbury Protestant Hosp	Gen	Church	50	27	16	33	4	731	
St John's Hospital	Gen	Church	55	26	11	14	5	876	
Smith Center, 1,736—Smith Co									
Dr C C Funk's Private	Gen	Indiv	16	3	1	0		120	
Hospital									
Spearsville, 703—Ford Co									
Perkins' Hospital	Gen	Indep	16	6	3	0	2	270	
Stafford, 1,614—Stafford Co									
Community Hospital	Gen	Part	12	5	3	0	5	106	
Sterling, 1,868—Rice Co									
Sterling Hospital	Gen	Indep	26	7	5	4	2	414	
Syracuse, 1,383—Hamilton Co									
Donohue Memorial Hospital	Gen	County	26	8	6	0	5	261	
Topeka, 64,120—Shawnee Co									
A T & S F Railway Hosp	Indus	Indus	146	86		0	13		
Christ's Hospital	Gen	Church	64	53	26	52	7	1,407	
Hillcrest Sanatorium	TB	Cy & Co	50	36		6	2	151	
Jane C Stormont Hosp	Gen	Indep	75	46	15	35	6	1,227	
Menninger Sanitarium	N&M	Indep	46	24		12	8	106	
St Francis Hospital	Gen	Church	75	49	12	38	4	1,223	
Security Benefit Home and	Gen	Frat	250	76		6	11	1,694	
Hospital	Mental	State	1,818	1,766		6		348	
Topeka State Hospital									
Wamego, 1,047—Pottawatomie Co									
Genn Hospital	Gen	City	15	5	4	6	3		

KANSAS—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Wellington, 7,407—Sumner Co									
Hatcher Hospital	Gen	Indiv	30	6	5	6	6		343
St Luke's Hospital	Gen	Indep	26	7	6	0	4		305
Wichita, 111,110—Sedgwick Co									
Coffman Hospital	Gen	Indiv	15	10	3	6	2		400
St Francis' Hospital	Gen	Church	275	118	25	78	4		3,401
Sedgwick County Tuberculo- sis Sanitarium	TB	County	45	45		0	1		26
Wesley Hospital	Gen	Church	209	131	26	75	14		3,714
Wichita Hospital	Gen	Church	163	71	14	59	16		2,657
Winfield, 9,398—Cowley Co									
St Mary's Hospital	Gen	Church	44	20	0	20	6		763
William Newton Memorial Hospital	Gen	City	42	21	16	21			734
Related Institutions									
Ashland, 1,272—Clark Co									
Ashland Hospital	Gen	Indep	11	5	4	0	3		302
Atchison, 13,024—Atchison Co									
Prospect Park Sanitarium	N&M	Indiv	25	11		6	1		15
Ellsworth, 2,672—Ellsworth Co									
Mother Bickerdyke Home and Hospital	Inst	State	35	23		0	5		16
Ft Dodge, 515—Ford Co									
Kansas State Soldiers' Home Hospital	Inst	State	36	19		0	7		188
Humboldt, 2,558—Allen Co									
Dr Payne's Emergency Hos- pital	Gen	Indiv	10	3	2	6	1		100
Lansing 812—Leavenworth Co									
Asylum for Dangerous In- sane	Mental	State	85	74		6			
Kansas State Penitentiary Hospital	Inst	State	53	19		0	0		253
Lawrence, 13,726—Douglas Co									
Haskell Institute Hospital	Inst	Indian	46	9		6	2		652
Watkins Memorial Hospital	Inst	State	40	16		6	4		885
Leavenworth, 17,466—Leavenworth Co									
County Hospital	Inst	County	27	27		0			
Evergreen Sanitarium	N&M	Indiv	30	10		0			
United States Penitentiary Hospital	Inst	Fed	174	157		0	5		2,557
Lebanon, 723—Smith Co									
Lebanon Hospital	Gen	Indiv	10	1	3	0	1		82
Lincoln, 1,732—Lincoln Co									
Lincoln Hospital	Gen	Indiv	7	2	4	0			
Manhattan, 10,136—Riley Co									
Kansas State Agricultural College Hospital	Inst	State	30	2		0	4		210
Marion, 1,959—Marion Co									
Marion Hospital	Gen	Indep	10	1	1	0	2		220
Marysville, 4,013—Marshall Co									
Marysville Hospital	Gen	Part	10	4	2	0			
National Military Home, 2,510—Leavenworth Co									
Veterans Admin Home	Inst	VetAd	448	411		0	28		706
Norwich, 477—Kingman Co									
Norwich Hospital	Gen	Indiv	0	4	3	0	2		240
Olathe, 3,676—Johnson Co									
State School for the Deaf	Inst	State	19	3		0	1		165
Parsons, 14,903—Labette Co									
Parsons Hospital and Mater- nity Home	Gen	Indiv	8	6	3	0	2		70
Scott City, 1,544—Scott Co									
Scott City Hospital	Gen	Indiv	0	1	0	6	3		81
Topeka, 64,120—Shawnee Co									
Methodist Episcopal Home for the Aged	Inst	Church	65	60		0	1		743
Nellie Johns Memorial Hos- pital (col)	Inst	State	20	2	1		1		389
State Industrial School for Boys	Inst	State	24	8		6	1		
Wichita, 111,110—Sedgwick Co									
Salvation Army Home and Hospital	Mater	Church	77	68	16	6	2		215
Suburban Rest	Gen	Indiv	30	18		6	4		114
Wichita Children's Home Hospital	Inst	Indep	25	6		0			
Winfield, 9,398—Cowley Co									
State Training School	MenDef	State	1,676	997	29	0	6		63
Summary for Kansas									
	Number	Beds	Average Patients			Patients Admitted			
Hospitals and sanatoriums	161	10,637	7,804			76,208			
Related institutions	29	2,452	1,967			8,435			
Totals	136	13,089	9,771			84,643			
Refused registration	23	520							
KENTUCKY									
Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Ashland 29 074—Boyd Co									
Kings Daughters Hospital	Gen	Church	70	29	6	7	4		830
Stephenson Hosp and Clinic	Gen	Indiv	65	19	5	0	5		688
Barbourville, 2,380—Knox Co									
Logan Hospital	Gen	Indiv	14	0	2	0			
Berea, 1,827—Madison Co									
Berea College Hospital	Gen	Indep	125	23	2	10	4		2,151
Beverly, 63—Bell Co									
Red Bird Evangelical Hosp	Gen	Church	16	5	4	0	3		130

KENTUCKY—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Bowling Green, 12348—Warren Co City Hospital ¹⁰⁰	Gen	City	58	15	8	9	6	603	
Camp Knox 320—Hardin Co Station Hospital ¹⁰⁰	Gen	Army	30	28				843	
Carlisle 1469—Nicholas Co Johnson Memorial Hospital ¹⁰⁰	Gen	County	12	4	2	0	2	130	
Covington 6322—Kenton Co St Elizabeth Hospital ¹⁰⁰	Gen	Church	334	167	22	30	20	3323	
Cynthiana 4386—Harrison Co Harrison Memorial Hosp ¹⁰⁰	Gen	Indep	35	15	5	8	3	230	
Danville 6729—Boyle Co Danville and Boyle County Hospital ¹⁰⁰	Gen	Cy&Co	50	23	4	0	4	1159	
Dayton 9071—Campbell Co Speer's Memorial Hospital ¹⁰⁰	Gen	County	07	55	15	34	0	2089	
Ft Thomas (Newport P O)—Campbell Co Station Hospital ¹⁰⁰	Gen	Army	52	8					
Franklin 3046—Shannon Co Southern Kentucky Sanat ¹⁰⁰	Gen	Indiv	30	23	13	0	6	1600	
Frenchburg 246—Menifee Co Frenchburg Hospital ¹⁰⁰	Gen	Church	20	3				101	
Fulton 3502—Fulton Co Curila Nell Hospital ¹⁰⁰	Gen	Indiv	10	4				103	
Georgetown 4229—Scott Co John Graves Ford Memorial Hospital ¹⁰⁰	Gen	Cy&Co	23	0	6	0	3	191	
Glasgow, 5042—Barren Co Sampson Community Hosp ¹⁰⁰	Gen	Counties	50	22	10				
Harlan 4327—Harlan Co Harlan Hospital ¹⁰⁰	Gen	Indep	60	12	6	0	0	1206	
Harrodsburg 4029—Mercer Co A D Price Memorial Hosp ¹⁰⁰	Gen	Indep	18	7	4	0	4	233	
Hazard 7021—Perry Co Hazard Hospital ¹⁰⁰	Gen	Indep	17	16	1	0	2	046	
Hurst Snyder Hospital ¹⁰⁰	Gen	Part	14	10	7	0	3	368	
Henderson 1166—Henderson Co Henderson Hospital ¹⁰⁰	Gen	Indep	42	20	5	0	8	1263	
Hopkinsville, 10746—Christian Co Jennie Stuart Mem Hosp ¹⁰⁰	Gen	Indep	27	17	3	14	0	764	
Hyden 813—Leslie Co Frontier Nursing Service Hospital ¹⁰⁰	Gen	Indep	12	0	0	0	3	224	
Jackson 2109—Breathitt Co Bach Hospital ¹⁰⁰	Gen	Indiv	28	14	2	0	3	693	
Jenkins, 846—Letcher Co Jenkins Hospital ¹⁰⁰	Gen	Indus	63	23	10	0	11	708	
Kent 1212—Harlan Co Black Mountain Hospital ¹⁰⁰	Gen	Indus	15	3	1	0		163	
Lebanon, 3248—Marion Co Elizabeth's Hospital ¹⁰⁰	Gen	Indiv	10	4	4	0	1	163	
Lexington 43786—Fayette Co Good Samaritan Hosp ¹⁰⁰	Gen	Church	200	125	10	60	12	3409	
High Oaks Sanatorium ¹⁰⁰	N&M	Indiv	43	20			0	1163	
Julius Marks Sanatorium ¹⁰⁰	TB	County	90	88			0	160	
St Joseph's Hospital ¹⁰⁰	Gen	Church	200	126	20	70	4	4033	
Shriners Hospital for Crippled Children (Included in Good Samaritan Hospital)									
Veterans Admin Hospital ¹⁰⁰	Gen	Vet Ad	230	208			0	271	1922
London 1930—Laurel Co Pennington General Hospital ¹⁰⁰	Gen	Indep	33	13	4	0	4	230	
Iowa, 1931—Lawrence Co Iowa General Hospital ¹⁰⁰	Gen	Indiv	33	13	5	0			
Ioulesville 30774—Jefferson Co Beechurst Sanatorium ¹⁰⁰	N&M	Indiv	20	8			0	70	
Children's Free Hospital ¹⁰⁰	Gen	Indep	74	47	18	7		888	
Jewish Hospital ¹⁰⁰	Gen	Indep	43	12	14	3		1717	
Kentucky Baptist Hospital ¹⁰⁰	Gen	Church	130	80	20	20	12	2680	
Kentucky State Tuberculosis Sanatorium ¹⁰⁰	TB	State	80	48			0	2	86
Kosair Crippled Children Hospital ¹⁰⁰	Ortho	Indep	77	44			0	223	
Louisville City Hosp ¹⁰⁰	Gen	City	400	401	40	100	27	1146	
Louisville Neuropathic Sanatorium ¹⁰⁰	N&M	Part	24	21			0	248	
Methodist Episcopal Deaconess Hospital ¹⁰⁰	Gen	Church	67	70	8	20	4	1066	
Norton Mem Infirmary ¹⁰⁰	Gen	Church	107	63	23				
Pope Hospital ¹⁰⁰	Gen	Indiv	23	14			0	271	
Red Cross Hosp (col) ¹⁰⁰	Gen	Indep	60	28	6	10	2	230	
St Anthony's Hospital ¹⁰⁰	Gen	Church	133	30	12	57	6	2432	
St Joseph Infirmary ¹⁰⁰	Gen	Church	300	132	26	108	25	4433	
St Mary and Elizabeth Hospital ¹⁰⁰	Gen	Church	145	72	18	22	16	2272	
Dr Stokes Sanatorium ¹⁰⁰	N&M	Indiv	40	13			0	148	
U S Marine Hospital ¹⁰⁰	Gen	USPHS	53	73			0	8343	
Lynch 3030—Harlan Co Lynch Hospital ¹⁰⁰	Gen	Indus	30	12	4	0	6	464	
Madisonville 6908—Hopkins Co Madisonville Hospital ¹⁰⁰	Gen	Indep	20	7	3	0			
Manchester 713—Clay Co Anderson and Ricketts Hosp ¹⁰⁰	Gen	Part	20		4	0	1	2	
Martin 731—Floyd Co Beaver Valley Hospital ¹⁰⁰	Gen	Part	40	2	2	0	3	124	
Mayfield 8177—Graves Co Fuller-Gilliam Hospital ¹⁰⁰	Gen	Part	12				0	5	42
Mayfield Hospital ¹⁰⁰	Gen	Part	40	16	2	0	6	313	
Mayville 637—Mason Co Maywood Hospital ¹⁰⁰	Gen	Indep	4	3			0	6	32
Millersboro 10730—Bell Co Mt Sterling 430—Montgomery Co Mary Childs Hospital ¹⁰⁰	Gen	Indep	40	17	3	3	2	633	
Murray 2331—Calloway Co Key Mountain Clinic Hosp ¹⁰⁰	Gen	City	16	6	2	0	4	200	
Win Mason Mem Hosp ¹⁰⁰	Gen	Part Indiv	33	9			0	200	

KENTUCKY—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Outwood—Christian Co Veterans Admin Hospital ¹⁰⁰	TB	Vet Ad	370	335			0	37	1132
Owensboro 22765—Davless Co Owensboro City Hospital ¹⁰⁰	Gen	City	103	33	7	21	5	1	263
Paducah, 73541—McCracken Co Ewart Purcell Isolation Hospital (Included in Riverside Hospital)	Gen	Indus	100	51	4	0	11	1818	
Paducah, 73541—McCracken Co Illinois Central Hospital ¹⁰⁰	Gen	City	138	51	12	28	3	2	325
Paintsville 2411—Johnson Co Paintsville Hospital ¹⁰⁰	Gen	Indep	30	20	4	10	4	570	
Paris 6204—Bourbon Co W W Massie Mem Hosp ¹⁰⁰	Gen	City	46	10	4	12	3	430	
Pewee Valley, 582—Oldham Co Pewee Valley Rural Sanitarium and Hospital ¹⁰⁰	Gen	Indep	22	7	3	0	4	103	
Pikeville 3376—Pike Co Methodist Hospital ¹⁰⁰	Gen	Church	50	23	6	11	2	070	
Pineville 3367—Bell Co Pineville Community Hosp	Gen	Indep	30	12	1	0	1		
Princeton 4764—Caldwell Co Princeton Hospital ¹⁰⁰	Gen	Indep	15	5	3	0	1	05	
Richmond 6493—Madison Co Gibson Hospital ¹⁰⁰	Gen	Indiv	20	7			0	230	
Puttler 4 Clay Infirmary ¹⁰⁰	Gen	Indep	15	17	4	0		331	
U S Public Health Service Trachoma Hospital ¹⁰⁰	Trach	USPHS	38	36			0	3	
Seco 1130—Letcher Co Seco Hospital ¹⁰⁰	Indus	Indiv	10	5			0	1	180
Shelbyville 4033—Shelby Co Kings Daughters Hospital ¹⁰⁰	Gen	Church	70	13	5	0	3	430	
Somerset 5506—Pulaski Co Somerset General Hospital ¹⁰⁰	Gen	Indep	20	7	3	0	1	334	
Stanford 1544—Lincoln Co Lincoln County Mem Hosp	Gen	County	13	7	2	0			
Versailles 2244—Woodford Co Woodford County Memorial Hospital ¹⁰⁰	Gen	Cy&Co	24	12	4	0	4	300	
Waverly Hills—Jefferson Co Waverly Hills Sanatorium ¹⁰⁰	TB	Cy&Co	405	437	13	0	10	526	
Winchester 8233—Clark Co Clark County Hospital ¹⁰⁰	Gen	Cy&Co	40	9	4	0	5	354	
Guerrant Clinic and Hosp ¹⁰⁰	Gen	Indiv	20	6	3	0	3	210	
Related Institutions									
Annville 121—Jackson Co Annville Institute Infirmary ¹⁰⁰	Inst	Church	10	2			0	1	130
Danville 6729—Boyle Co Kentucky School for the Deaf Hospital ¹⁰⁰	Inst	State	40	5			0		
Earlington 3300—Hopkins Co West Kentucky Hospital ¹⁰⁰	Indus	Indus	10				0		
Eddyville 1980—Lyon Co Kentucky Penitentiary Hosp	Inst	State	30	3			0		
Erlanger 1833—Kenton Co Highway Medical Hospital ¹⁰⁰	Gen	Indiv	25	8	4	0			
Fleming 1389—Letcher Co Fleming Hospital ¹⁰⁰	Indus	Indus	10	2			0	2	75
Frankfort 11826—Franklin Co Kentucky State Reformatory Hospital ¹⁰⁰	Inst	State	100	10			0		
State Institution for the Feeble-minded	MenD	State	688	600			0	0	57
Winn Annett Scott Memorial Hospital (col) ¹⁰⁰	Gen	Indep	15	4			0	1	
Grayson 1022—Carter Co J Q Stovall Mem Hosp	Gen	Indiv	10	6	1	0	1	130	
Guerrant 27—Breathitt Co Highland Institution Hosp	Gen	Church	8	2			0	106	
Hopkinsville 10736—Christian Co Western State Hospital ¹⁰⁰	Mental	State	1800	1702			0	0	
Lakeland 53—Jefferson Co Central State Hospital ¹⁰⁰	Mental	State	2300	2330			0	0	671
Lexington, 45796—Fayette Co Eastern State Hospital ¹⁰⁰	Mental	State	1800	1832			0	073	
Louisville 30774—Jefferson Co Kings Daughters Home for Incurables	Incur	Church	30	82			0	3	27
Mt St Agnes Sanitarium ¹⁰⁰	TB N&M	Church	40	20			0	3	25
Susan Speed Davis Home and Hospital ¹⁰⁰	Mater	Church	5	90	9	0			
Paducah 3141—McCracken Co McCracken County Tuberculosis Sanitarium ¹⁰⁰	TB	County	22	16			0		
Pewee Valley 582—Oldham Co Kentucky Confederate Home Infirmary ¹⁰⁰	Inst	State	30	7			0	0	5
Richmond 6493—Madison Co Eastern Kentucky Colored Women's Hospital (col) ¹⁰⁰	Gen	Indep	12	2			0		
Shelbyville, 4033—Shelby Co Amanda Smith Hosp (col) ¹⁰⁰	Gen	Church	8				0	1	109
Old Mason's Home of Kentucky Hospital ¹⁰⁰	Inst	Frat	16	4			0		
Smiths Grove 735—Warren Co Lucy T Owen Hospital ¹⁰⁰	Gen	Indiv	12	1	1	0	1	23	
Somerset 5506—Pulaski Co Pulaski County Hospital ¹⁰⁰	Gen	Indep	15	6	3	0			
Summary for Kentucky									
Hospitals and sanatorium	Number	Beds	Average Patients	Patients Admitted					
Related Institutions	4	6,202	675	78,649					
Refused registration	25	7,197	6,723	0,737					
Totals	109	13,399	10,398	83,406					
Refused registration	8	175							

Key to symbols and abbreviations is on page 911

LOUISIANA

Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Alexandria, 23,025—Rapides Parish	Gen	Church	60	24	5	0	10	1,241	
Baptist Hospital	Gen	Church	430	330	5	0	42	1,042	
Veterans Admin Hospital	Gen	Church							
Bastrop, 5,121—Morehouse Parish	Gen	City	25	11	5	0	4		
Bastrop General Hospital	Gen	City							
Baton Rouge, 30,729—East Baton Rouge Parish	Gen	City	61	43	6	20	4	2,111	
Baton Rouge General Hospital	Gen	City							
Our Lady of the Lake Sanatorium	Gen	Church	100	59	10	32		2,030	
Bogalusa, 14,029—Washington Parish	Gen	Church							
Elizabeth Sullivan Memorial Hospital	Gen	Indus	84	58	10	28	5	2,899	
Brenn's Bridge, 1,788—St Martin Parish	Gen	Indiv	10	2	1	0	1	210	
St Paul Hospital	Gen	Indiv							
Carville, 308—Iberville Parish	Gen	Indiv							
U S Marine Hospital	Gen	Indiv							
Converse, 201—Sublime Parish	Gen	Indiv	425	350	0	11	80		
Allen Sanatorium	Gen	Indiv	24	0	0	0	4	400	
Covington, 3,208—St Tammany Parish	Gen	Indiv	64	32	0			210	
New Levee Sanatorium	Gen	Indiv							
Crowley, 7,676—Acadia Parish	Gen	Indiv	20	0	4	0	2	876	
Crowley Sanatorium	Gen	Indiv							
De Ridder, 1,747—Beauregard Parish	Gen	Indiv	18	3	1	0	2	154	
De Ridder Sanatorium	Gen	Indiv							
Elizabeth, 3,000—Allen Parish	Gen	Indiv							
Industrial Lumber Co Hospital	Gen	Indiv	22	25	1	0	2	300	
Eunice, 3,597—St Landry Parish	Gen	Indiv	18	5	2	0			
Union Clinic and Hospital	Gen	Indiv							
Haynesville, 2,541—Calhoun Parish	Gen	Indiv	25	7	2	0	3	310	
Haynesville Hospital	Gen	Indiv							
Jackson, 3,966—East Feliciana Parish	Gen	Indiv	2,600	2,975	0	4	473		
East Louisiana State Hospital	Gen	Indiv							
Parker Hospital	Gen	Indiv							
Lafayette, 14,635—Lafayette Parish	Gen	Indiv	25	5	1	0	1	1,100	
Lafayette Sanatorium	Gen	Indiv							
St John Hospital	Gen	Indiv	25	15	0				
Lake Charles, 15,701—Calcasieu Parish	Gen	Church	75	37	5	27	8	1,766	
St Patrick's Sanatorium	Gen	Church							
Lecompte, 1,247—Rapides Parish	Gen	Part	20	5	2	0	2	140	
Lecompte Sanatorium	Gen	Part							
Mansfield, 3,837—De Soto Parish	Gen	Indiv	32	8	2	0	2	322	
Mansfield Sanatorium	Gen	Indiv							
Minden, 5,623—Webster Parish	Gen	Indiv	35	6	2	0	3	308	
Minden Sanatorium	Gen	Indiv							
Monroe, 26,025—Ouachita Parish	Gen	Church	125	75	15	40	10	3,053	
St Francis' Sanatorium	Gen	Church							
Natchitoches, 4,547—Natchitoches Parish	Gen	Indiv	29	3	4	0			
Natchitoches Hospital	Gen	Indiv							
New Iberia, 8,003—Iberia Parish	Gen	Indiv	20	6	2	0	1	305	
Dauterive Hospital	Gen	Indiv							
New Orleans, 458,762—Orleans Parish	Gen	State	1,750	2,102	53	137	45,483		
Charity Hospital	Gen	State							
City Hospital for Mental Diseases	Gen	City	100	01	0			562	
Delgado Memorial Hospital	Gen	City							
De Paul Sanatorium	Gen	Church	250	250	0	0		260	
Dibert Tuberculosis Hospital	Gen	Church							
Eye, Ear, Nose and Throat Hospital	Gen	Indiv	68	10	0	13	4,609		
Flint Goodridge Hospital of Dilhard Univ (col)*	Gen	Indiv	88	29	12	27	6	077	
French Hospital	Gen	Indiv	62	31	13	0	8	1,284	
Hotel Dieu Hospital	Gen	Church	238	160	23	120	10	5,260	
Illinois Central Hospital	Gen	Indiv	00	27	0	7	799		
Mercy Hospital	Gen	Church	125	65	28	60	3	2,362	
New Orleans Hosp and Disp for Women and Children	Gen	Indiv	32	20	12		1		
Richard Milliken Memorial Hosp (Included in Charity Hospital)	Gen	Church	198	114	24	82	11	6,465	
Southern Baptist Hosp	Gen	Church	329	215	44	150	17	8,549	
Touro Infirmary	Gen	Indiv	572	435	0	61	4,031		
U S Marine Hospital	Gen	USPHS							
Opelousas, 6,209—St Landry Parish	Gen	Indiv	15	7	0				
St Landry Sanatorium	Gen	Indiv							
St Rita's Infirmary	Gen	Part	20	6	0	1	354		
Patterson, 2,206—St Mary Parish	Gen	Part	30	8	5	0			
St Mary Hospital	Gen	Part							
Pineville, 3,612—Rapides Parish	Gen	Indiv							
Central Louisiana State Hospital	Gen	Indiv	1,650	1,602	0	5	421		
Plaquemine, 5,124—Iberville Parish	Gen	Indiv	25	10	7	0	2	1,106	
Plaquemine Sanatorium	Gen	Indiv							
Ruston, 4,400—Lincoln Parish	Gen	Indiv	25	0	2	0	3	410	
Ruston Lincoln Sanatorium	Gen	Indiv							
Shreveport, 70,655—Caddo Parish	Gen	Part	108	50	8	35	4	2,391	
Highland Sanatorium	Gen	Part							
Mercy Sanatorium (col)	Gen	Part	15	3	2	4	1	1,105	
North Louisiana Sanatorium	Gen	Indiv	100	55	10	26	4	2,754	
Pines Sanatorium	Gen	Indiv	100	05	0	3	93		
T E Schumpert Memorial Sanatorium	Gen	Church	150	50	12	30	7	1,960	
Shreveport Charity Hosp	Gen	State	475	383	48	100	12	9,866	
Shriners Hospital for Crippled Children	Ortho	Frat	60	65	0	7	200		
Tri State Hospital	Gen	Indiv	120	50	5	35	0	2,343	
Winnboro, 1,965—Franklin Parish	Gen	Indiv	28	10	0				
Winnboro Sanatorium	Gen	Indiv							
Zachary, 626—East Baton Rouge Parish	Gen	State	100	64	0	1	68		
Greenwell Springs Sanatorium	TB	State							

Related Institutions

Alexandria, 23,025—Rapides Parish	Gen	Church							
State Colony and Training School	Men	Def State	650	650	0	0	50		
Baton Rouge, 30,729—East Baton Rouge Parish	Gen	City							
Louisiana State Penitentiary Hospital	Inst	State	40	18	0				

LOUISIANA—Continued

Related Institutions	Type of Service	Control	Beds, Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Ferriday, 2,502—Concordia Parish	Gen	Part	0	2	2	0	2	622	
Ferriday Hospital	Gen	Part							
New Orleans, 458,762—Orleans Parish	Gen	City	125	15	0				
Isolation Hospital	Gen	City							
New Orleans Conv Home	Conv	Indiv	30	20	0			237	
New Orleans Home for Incurables	Conv	Indiv							
Orleans Tuberculosis Hosp	Incur	Indiv	130	115	0	1	23		
St Anna's Asylum	TB	Indiv	100	54	0	2	54		
	Inst	Church	10	5	0	1			
Summary for Louisiana									
Hospitals and sanatoriums	Number	Beds	Average Patients	Patients Admitted					
Related institutions	56	11,308	10,116	128,803					
	8	1,001	879	1,309					
Totals	64	12,309	10,995	128,178					
Refused registration	1	26							

MAINE

Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Augusta, 17,198—Kennebec Co									
Augusta General Hospital	Gen	Indep	85	39	12	43	7	1,713	
Augusta State Hospital	Mental	State	970	1,230		0			261
Bangor, 23,740—Penobscot Co									
Bangor Sanatorium	TB	Indep	30	17		0	2		61
Bangor State Hospital	Mental	State	875	953		11	9		238
Eastern Maine General Hospital	Gen	Indep	150	121	14	75	14	3,374	
Palme Private Hospital	Gen	Indiv	25	11	3	8			
Bar Harbor, 4,486—Hancock Co									
Mount Desert Island Hosp	Gen	Indep	35	19	4	0	9		777
Bar Mills, 165—York Co									
Buxton Hollis Hospital	Gen	Indiv	12	4	2	0	2		150
Bath, 9,110—Sagadahoc Co									
Bath City Hospital	Gen	Indep	50	22	10	14			582
Belfast, 4,993—Waldo Co									
Bradbury Memorial Hosp	Gen	Indep	20	7	5	0	2		146
Waldo County General Hospital	Gen	Indep	38	20	6	20	6		425
Biddeford, 17,633—York Co									
Trull Hospital	Gen	Part	40	20	10	18	5		704
Webber Hospital	Gen	Indep	50	30	10	20	4		925
Blue Hill, 1,439—Hancock Co									
Blue Hill Memorial Hosp	Gen	Indep	25	15	6	10	3		266
Boothbay Harbor, 2,076—Lincoln Co									
St Andrew's Hospital	Gen	Indep	20	4	4	4	1		175
Brunswick, 6,144—Cumberland Co									
Brunswick Hospital	Gen	Indiv	46	25	6	15	2		682
Cala's, 6,470—Washington Co									
Cala's Hospital	Gen	Indiv	50	31	5	20	2		1,121
Cape Cottage, 33—Cumberland Co									
Station Hospital	Gen	Army	20	10		0	0		354
Caribou, 7,248—Aroostook Co									
Cary Memorial Hospital	Gen	City	40	27	10	18	4		883
Castine, 726—Hancock Co									
Castine Community Hosp	Gen	Indep	10	6	6	0	3		200
Eagle Lake, 1,740—Aroostook Co									
Northern Maine Gen Hosp	Gen	Church	32	16		0	2		313
Ellsworth, 3,557—Hancock Co									
Hurley Private Hospital	Gen	Indiv	20	8	5	0	3		
Fairfield, 3,520—Somerset Co									
Central Maine Sanatorium	TB	State	189	182		0	7		127
Farmington, 1,737—Franklin Co									
Franklin County Memorial Hospital	Gen	Indep	40	22	10	0	4		609
Ft Fairfield, 2,616—Aroostook Co									
Fort Fairfield Clinic	Gen	Indep	18	8	5	0	4		562
Gardner, 5,609—Kennebec Co									
Gardner General Hospital	Gen	Indep	40	20	12	18	4		637
Greenville Junction 345—Piscataquis Co									
Charles A Dean Hospital	Gen	Indep	20	6	5	0	3		209
Greenwood Mountain, Oxford Co									
Western Maine Sanatorium	TB	State	149	146		0			69
Houlton, 6,865—Aroostook Co									
Aroostook Hospital	Gen	Indep	35	22	12	18	4		938
Madigan Memorial Hosp	Gen	Church	33	17	7	18	5		520
Ipswich, 34,948—Androscoggin Co									
Central Maine General Hospital	Gen	Indep	151	97	28	69	8		2,448
St Mary's General Hosp	Gen	Church	150	86	12	42	14		2,234
Old Town, 7,266—Penobscot Co									
Deering Private Hospital	Gen	Indiv	12	3	4	0	2		98
Portland, 70,510—Cumberland Co									
Children's Hospital	Chil	Indep	100	68		30			474
Farrington Hospital	Gen	City	90	75	8	0	4		408
Dr Leighton's Private Maternity Hospital	Mater	Indiv	12	11	10	8	2		351
Maine Eye and Ear Infirmary General Hospital	Gen	Indep	110	89	20	34	10		2,709
Maine General Hospital	Gen	Indep	250	186	27	112	14		4,376
Queen's Hospital	Gen	Church	46	24	11	25	3		680
St Barnabas Hospital	Gen	Indiv	60	35	15	42	9		1,064
State Street Hospital	Gen	Indep	52	25	12	29	5		792
U S Marine Hospital	Gen	USPHS	72	80		0	8		641
Presque Isle, 4,602—Aroostook Co									
Northern Maine Sanatorium	TB	State	117	115		0	7		89
Presque Isle General Hosp	Gen	Indep	50	35	10	20	4		937
Rockland, 9,075—Knox Co									
Knox County Gen Hosp	Gen	Indep	66	31	7	25	7		894
Rumford, 10,340—Oxford Co									
Rumford Community Hosp	Gen	Indep	75	30	8	18	6		574

MAINE—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Sanford 13,392—York Co									
Henrietta D Goodall Hospital	Gen	Indep	2	2	8	20	2		603
Slowhegan 6433—Somerset Co	Gen	Indiv	40	32	5	8	4	1	700
Kennebec Valley Hospital									
Waterville 15,454—Kennebec Co	Gen	Indiv	21	17	1	8	1		412
Elm City Hospital	Gen	Church	60	50	10	31	5	1	85
Sisters Hospital	Gen	Indep	30	10	4	0	11		640
Thayer Hospital									
Westbrook, 10,807—Cumberland Co	Gen	Indiv	18	10	7	0	3		262
Westbrook Hospital									
York Village 1,230—York Co	Gen	Indep	16	8	6	0			236
York Hospital									
Related Institutions									
Auburn 18,571—Androscoggin Co	Gen	Indiv	10	4	6	0			
Auburn Private Hospital									
Augusta 17,198—Kennebec Co	Inat	Yet Ad	324	209		0	12		761
Veterans Admin Home									
Bangor 28,740—Penobscot Co	Gen	Indiv	18	6	2	0	2		22
Fellows Private Hospital	Gen	Indiv	12	6	2	0	4		800
Friendship Hospital	Gen	Indiv	12	4	12	0	1		70
Home Private Hospital	Mater	Indiv	11	1	1	0	0		140
Laura Purcell Hospital	Gen	Indiv	14	8	5	0			
Stinson Private Hospital									
Bridgton 2,650—Cumberland Co	Gen	Indep	10	1	4	0	1		70
Northern Cumberland Memorial Hospital									
Dexter 4,063—Penobscot Co	Gen	Indep	20	1	4	0	4		230
Plummer Memorial Hospital									
Dover Foxcroft 3,700—Piscataquis Co	Gen	Indiv	10	3	1	0	3		107
Dover Foxcroft Hospital									
East Parsonfield 300—York Co	TB	Indep	30	25		0			
Restland									
Freeport 073—Cumberland Co	Gen	Part	9	4	4	0	2		14
Freeport Hospital									
Mars Hill 1,837—Aroostook Co	Gen	Indiv	8	2	2	0	1		80
Mars Hill Hospital									
Millinocket 5,830—Penobscot Co	Gen	Indiv	7	4	5	0	3		201
Bryant Hospital									
Portland 70,810—Cumberland Co	Mater	Indiv	10	5	10	0			
Dr Black's Private Mater nity Hospital	Iso	City	2	2		0			
Portland Isolation Cottage	Conv	Indiv	14	6		0	1		8
Dr O P Westcott Sanat									
Powass 402—Cumberland Co	MenDef	State	820	740		0	9		180
Powass State School									
Strong 878—Franklin Co	Gen	Indiv	10	4		0	5		
Dr Bell's Private Hospital									
Union 1,060—Knox Co	N & M	Indep	30	23		0	2		13
Jones Sanitarium									
Summary for Maine									
Hospitals and sanatoriums	33		4,877		4,206				41,014
Related institutions	20		1,428		1,004				2,630
Totals	73		6,305		5,210				43,640
Refused registration	6		130						

MARYLAND

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Aberdeen Proving Ground 21—Harford Co	Gen	Army	30	4		0			
Station Hospital									
Annapolis 12,531—Anne Arundel Co	Gen	State Navy	8	10	15	24	7	1	1,577
Annapolis Emergency Hospital	Gen	State Navy	220	42		0	9		927
U S Naval Hospital									
Baltimore 84,874—Baltimore City	Gen	City	746	601	10	0	29	4	4,333
Baltimore City Hospitals (General)*+00	Gen	City	746	601	10	0	29	4	4,333
Baltimore City Hospitals (Psychopathic)*	Mental	City	2	300		0			27
Baltimore City Hospitals (Tuberculosis)*	TB	City	182	151		0			223
Baltimore Eye Ear and Throat Charity Hosp +0	EFNT	Indep	60	23		0	4		2,602
Bon Secours Hospital	Gen	Church	80	2	12	5	14		1,183
Children's Hospital School	Ortho	Indep	120	82		0	3		240
Church Home & Infirmary +000	Gen	Church	157	107	19	104	2	2	2,282
Franklin Square Hospital +0	Gen	Indep	114	81	15	38	6	2	1,834
Hospital for Women +00	Gen	Indep	111	0	24	47	6	1	1,821
Howard A Kelly Hospital	Sk & Cu	Indep	27	8		0	6		41
James Lawrence Krumm Hospital and Industrial School for Crippled Children	Ortho	Indep	30	71		0	7		1,57
Johns Hopkins Hosp +000	Gen	Indep	919	637	68	2	196	12	978
Johnston Memorial Children's Hospital (Children's Dept of Union Memorial Hosp)	Gen	Church	207	174	21	0	11	4	22
Maryland General Hosp +000	Gen	Church	200	200	30	110	2	6	600
Maryland General Hosp +000	Gen	Church	200	200	30	110	2	6	600
Mt Hope Retreat	N & M	Church	600	600		22	1	7	7
Philips Psychiatric Clinic (Psychiatric Dept of Johns Hopkins Hosp)	EFNT	Church	0	11		0	12	2	40
Presbyterian Eye Ear and Throat Charity Hosp +0	EFNT	Church	0	11		0	12	2	40
Provident Hospital and Free Dispensary (col) +00	Gen	Indep	120	33	9	45	0	1	1,601
St Agnes Hospital +000	Gen	Church	187	134	18	36	13	1	2,28
St Joseph's Hospital +00	Gen	Church	229	171	34	60	20	4	2,501
Small Hospital +000	Gen	Indep	229	171	34	60	20	4	2,501

MARYLAND—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
South Baltimore General Hospital +000	Gen	Indep	103	60	12	2	11	1	1,778
Sydenham Hospital	Gen	Indep	110	66		0	15		1,600
Union Memorial Hosp +000	Gen	Indep	313	237	24	140			427
U S Marine Hospital +00	Gen	USPHS	208	201		0	23		1,716
University Hospital +000	Gen	State	200	200	2	111	30	5	343
Volunteers of America Hospital	Gen	Indep	40	20	4	0	3		347
West Baltimore General Hospital +000	Gen	Indep	160	91	35	41	7	2	1,300
Cambridge 8,544—Dorchester Co	Gen	Indep	70	37	14	2	5		920
Cambridge-Maryland Hosp +00	Gen	Indep	342	319		0	1		82
Eastern Shore State Hosp	Mental	State							
Cutonsville 4,600—Baltimore Co	N & M	Indiv	45	36		0	2		7
Gundry Sanitarium	N & M	Part	5	27		0	1		101
Harlem Lodge	Mental	State	1	100	1	4	0		520
Spring Grove State Hosp									
Crisfield, 3,830—Somerset Co	Gen	County	74	16	5	0	5		327
Edward W McCready Memorial Hospital	Gen	County							
Crownsville (Waterbury P O)—Anne Arundel Co	Gen	County							
Crownsville State Hospital (col)	Mental	State	90	92		21	4		703
Cumberland 37,747—Allegany Co	TB	Indiv	22	14		0	1		42
Allegany County Tuberculosis Sanatorium									
Allegany Hospital of the Sisters of Charity +000	Gen	Church	90	10	10	4	7		1,708
Memorial Hospital	Gen	Ch & Co	128	77	20	57	7	2	362
Enston 4,002—Talbot Co	Gen	Indep	82	77	19	27	6	1	899
Emergency Hospital +000									
Fidewood 110—Harford Co	Gen	Army	50	10		0	0		583
Station Hospital									
Fulton 3,331—Cecil Co	Gen	Indep	45	4	8	0	2		822
Union Hospital									
Ilkott City 1,216—Howard Co	N & M	Indep	25	15					62
Patapasco Manor Sanitarium	N & M	Indep	25	15					62
Ft George G Meade—Anne Arundel Co	Gen	Army	84	27		0	5		643
Station Hospital									
Ft Howard 508—Baltimore Co	Gen	Army	25	8		0	0		537
Station Hospital									
Ft Washington 415—Prince Georges Co	Gen	Army	28	10		0	0		823
Station Hospital									
Frederick 14,434—Frederick Co	Gen	Indep	113	60	12	30	4	1	1,650
Frederick City Hospital +00									
Frostburg 5,583—Allegany Co	Gen	State	75	15	5	0	2		306
State General Miner's Hospital									
Hagerstown 30,861—Washington Co	Gen	County	107	76	18	36	7	2	2,231
Washington County Hosp +00									
Havre de Grace 3,985—Harford Co	Gen	City	42	20	10	0	2		815
Havre de Grace Hospital									
Henrytown 27—Carroll Co	TB	State	150	146		17	5		208
Maryland Tuberculosis Sanatorium									
Ijamsville 72—Frederick Co	N & M	Indiv	25	25		0	2		15
Riggs Cottage Sanitarium									
Laurel 2,632—Prince Georges Co	N & M	Part	75	63		0			160
Laurel Sanitarium									
Mount Wilson—Baltimore Co	TB	State	160	107		0	5		1,302
Mt Wilson Branch Maryland Tuberculosis Sanatorium									
Olney 83—Montgomery Co	Gen	Indep	18	10	8	0	8	1	1,037
Montgomery County General Hospital									
Perry Point 80—Cecil Co	Mental	Yet Ad	101	101		0	3		440
Veterans Admin Hospital									
Prince Frederick 260—Calvert Co	Gen	County	40	15	6	0			
Calvert County Hospital									
Relietstown 1,030—Baltimore Co	TB	Indep	60	36		0	2		63
Mt Pleasant									
Rockville 1,422—Montgomery Co	N & M	Indiv	70	22		0	1		69
Chestnut Lodge Sanitarium									
Salisbury 10,997—Wicomico Co	TB	State	11	49		0	1		91
Maryland Tuberculosis Sanatorium									
Eastern Shore Branch									
Peninsula General Hospital	Gen	Indep	90	64	14	0			2,246
State Sanatorium 260—Frederick Co									
Maryland Tuberculosis Sanatorium									
Sykesville 661—Carroll Co	TB	State	40	470		0	10		701
Springfield State Hosp +0	Mental	State	2	466	2	370			505
Towson 1,000—Baltimore Co	Nerv	Indiv	2	18		0	3		82
Albany Manor	TB	Indep	190	187	5	22	8		230
Hospital for Consumptive +0	N & M	Indep	300	247		15	40		271
Sheppard and Fnoch Pratt Hospital +00									
Related Institutions									
Baltimore 84,874—Baltimore City									
Baltimore City Jail Hosp	Inst	City	2	14		0			
Fidewood Sanitarium	Conv	Indiv	27	18		0			
Happy Hills Convalescent Home for Children	Conv	Indiv	30	4		0	0		177
Home for Incurables	Incur	Indep	117	117		0			0
Maryland Penit Hosp +00	Inst	State	44	3		0	1		0
Strathmore Park Hospital	Gen	Indiv	1	4	3	0			0
Cheltenham 7—Prince Georges Co	Inst	State	14	5		0	0		75
House of Reformation (col)									
College Park 316—Prince Georges Co	Inst	State	12	4		0			
Infirmary Univ of Maryland									
Cumberland 37,747—Allegany Co	Mental	County	0	85		0	0		
Sylvan Retreat									
Ilkott City 1,216—Howard Co	MenDef	Indep	30	11		0			12
Beth Hill Sanitarium and Howard School									

Key to symbols and abbreviations is on page 911

MARYLAND—Continued

Related Institutions	Type of Service	Control	Beds, Rated	Capacity	Average Patients	Basinsets	Student Nurses	RNs for Nursing	Patients Admitted
Frederick, 14,434—Frederick Co	Inst	State	10	3	0	1	2		
Maryland State School for the Deaf	Inst	State	10	3	0	1	2		
Havattsille, 4 264—Prince Georges Co	Conv	Indlv	22	10	0	2	43		
Planchurst Sanitarium	MenDef	Part	24	20	0				
Jessup, 161—Howard Co	Inst	State	47	24	0	2	1,112		
Hill Top School	Gen	Indep	30	4	0	1	160		
Maryland House of Correec tion Hospital	Inst	State	8	1	0		12		
Leonardtown 607—St Marys Co	MenDef	State	1,000	1 060	0				
St Marys County Hospital	N & M	Part	50	10	0	0	70		
Loch Raven, 62—Baltimore Co	Conv	Indlv	15	14	0				
Maryland Traluh, School for Boys	N & M	Indlv	30	22	0				
Owings Mills, 215—Baltimore Co									
Rosewood State Training School									
Relay, 2 000—Baltimore Co									
Relay Sanitarium									
Rockville, 1,422—Montgomery Co									
Waverley Sanatorium									
Silver Springs, 263—Montgomery Co									
Maplewood Sanitarium									
Summary for Maryland	Number	Beds	Average Patients	Patients Admitted					
Hospitals and sanatoriums	67	15,490	13,005	100,674					
Related Institutions	20	1,515	1,519	2,458					
Totals	87	17,227	14,918	103,132					
Refused registration	4	81							

MASSACHUSETTS

Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated	Capacity	Average Patients	Basinsets	Student Nurses	RNs for Nursing	Patients Admitted
Aeushnet, 4,092—Bristol Co	Gen	Indlv	35	10	16	0	1	392	
Aeushnet Sanit and Hosp	Gen	City	47	22	13	0	8	676	
Adams 12 697—Berkshire Co	Gen	Indep	30	16	6	0	7	809	
W B Plunkett Mem Hosp	N & M	Indep	60	37	39	5	227		
Amesbury 11 897—Essex Co	Gen	Indep	75	39	25	40	7	1,805	
Amesbury Hospital	Gen	Indep	60	55	0	4	82		
Arlington 30,004—Middlesex Co	Gen	Indep	107	52	22	45	7	1,077	
Ring Sanatorium and Hosp	Gen	Indep	22	12	7	0	0	410	
Symmes Arlington Hospital	Gen	Indep	644	643	0	25	108		
Attleboro, 21,769—Bristol Co	N & M	Indep	232	210	131	102	171		
Bristol County Tuberculosis Hospital	Gen	Indep	121	96	20	54	12	2,454	
Sturdy Memorial Hospital	Gen	Indep	36	30	0	2	157		
Ayer 3 060—Middlesex Co	Gen	Indep	21	2	0	10	3	633	
Community Memorial Hosp	Gen	Indep	200	140	93	32	4	630	
Bedford 2,607—Middlesex Co	Gen	Indep	1,184	1,276	144	283	214	30	167
Veterans Admin Hospital	Chil	Indep	50	39	34	4	1	371	
Belmont, 21 748—Middlesex Co	Mater	Indep	217	138	217	88	24	3	296
McLean Hospital	Mental State	Indep	126	70	0	1	0	1,048	
Beverly 25 056—Essex Co	Gen	Indep	610	574	32	32	2	755	
Beverly Hospital	Gen	Indep	1,897	2 007	50	22	3	179	
Boston, 781 188—Suffolk Co	Gen	Indep	190	110	20	00	26	3	44
Adams Nervine	Gen	Indep	24	22	0	2	44		
Bay State Hospital	Chil	Indep	282	192	134	58	5	772	
Beth Israel Hospital	Gen	Indep	18	12	10	10	2	431	
Beth Israel Hospital	Gen	Indep	25	18	0	0	1	575	
Boston City Hospital	Gen	Indep	38	30	25	0	7	917	
Boston Floating Hospital	Gen	Indep	30	30	35	2	1	185	
Boston Lying in Hospital	Gen	Indep	129	83	21	101	20	2,365	
Boston Psychopathic Hosp	Gen	Indep	40	30	10	6			
Boston Sanatorium	N & M	Indlv	60	56	0	9	95		
Boston State Hospital	Gen	Indep	42	26	0	2	85		
Carney Hospital	Gen	Indep	60	20	25	25	4	662	
Channing Home	Gen	Indep	75	69	0		182		
Children's Hospital	Chil	Indep	65	45	48		829		
Codman Square Hospital	Gen	Indep	635	454	15	110	39	1 036	
Collis P Huntington Memo rial Hospital	Gen	Indep	25	13	5	0	3	455	
Emerson Hospital	FENT	Indep	219	140	12	19	40	7,008	
Evangeline Booth Maternity Hospital and Home	Gen	Indep	405	381	330	48	7	496	
Faulkner Hospital	Gen	Indep	193	119	31	85	3	425	
Fenway Hospital	Gen	Indep	479	329	91	118	37	9 057	
Glenside Sanat and Hosp	Gen	Indep	91	33	20	28	8	927	
Greater Boston Bikur Cholim Hospital	Gen	Indep	150	109	25	88	4	340	
Harley Private Hospital	Gen	Indep	250	162	160	30	4	4,565	
Hart Private Hospital	Gen	Indep	250	162	160	30	4	4,565	
House of the Good Samaritan	Gen	Indep	250	162	160	30	4	4,565	
Infants Hospital	Gen	Indep	250	162	160	30	4	4,565	
Long Island Hospital	Gen	Indep	250	162	160	30	4	4,565	
MacLeod Hospital	Gen	Indep	250	162	160	30	4	4,565	
Massachusetts Eye and Ear Infirmary	Gen	Indep	250	162	160	30	4	4,565	
Massachusetts General Hos pital	Gen	Indep	250	162	160	30	4	4,565	
Massachusetts General Hos pital (The Baker Memo rial)	Gen	Indep	250	162	160	30	4	4,565	
Massachusetts Memorial Hos pital	Gen	Indep	250	162	160	30	4	4,565	
Massachusetts Woman's Hos pital	Gen	Indep	250	162	160	30	4	4,565	
New England Baptist Hos pital	Gen	Indep	250	162	160	30	4	4,565	
New England Deaconess Hos pital	Gen	Indep	250	162	160	30	4	4,565	

MASSACHUSETTS—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
New England Hospital for Women and Children	Gen	Indep	185	111	75	40	48	3 013	
Peter Bent Brigham Hospital	Gen	Indep	247	196	131	44	4,056		
Riverbank Hospital	Gen	Indlv	32	9	6	0	11	422	
Robert Breck Brigham Hospital	Gen	Indep	115	82	15	15	414		
Roxbury Hospital	Gen	Church	20	11	10	0	5	709	
St Elizabeth's Hospital	Gen	Church	230	192	60	120	25	5,011	
St Margaret's Hospital	Gen	Church	48	40	32	60	11	1,047	
St Mary's Maternity Hospital	Mater	Church	17	5	25	15	150		
South Department for Infectious Diseases of the Boston City Hospital	Iso	City	294	181	6	6	18	2 126	
Strong Hospital	Gen	Indlv	22	14	14	0	15	301	
Vincent Memorial Hospital	Gen	Indep	22	14	0	15	301		
Braintree, 15,712—Norfolk Co	TB	County	136	136	0	11	92		
Norfolk County Hospital	Mental State	Indep	908	945	0		80		
Bridgewater, 9,055—Plymouth Co	Gen	Indep	131	88	27	38	17	2 187	
Bridgewater State Hospital	Gen	Indlv	12	7	4	0	3	180	
Brookton, 63,797—Plymouth Co	Gen	Indep	58	47	15	46	9	1,727	
Brockton Hospital	Gen	Indlv	25	18	8	9	3	460	
Ducy Hospital	N & M	Indlv	18	12	0		2		
Goddard Hospital	Gen	Indep	40	20	12				
Moore Hospital	Gen	Indep	43	36	0	20	1 074		
Brookline, 47,400—Norfolk Co	Gen	Indep	52	25	0	22	519		
Bournewood Hospital	Gen	Indep	97	69	42	3	313		
Brookline General Hospital	Gen	Indep	46	27	0	0	7	1,046	
Brooks Hospital	Gen	City	150	120	30	15	25	2 235	
Corey Hill Hospital	Gen	Indep	250	155	66	131	23	6 011	
Free Hospital for Women	Gen	Indep	40	30	4				
Trumbull Hospital	TB	City	100	80	0	2	05		
Cambridge, 113 643—Middlesex Co	Gen	Indep	85	51	20	0	6	710	
Cambridge City Hospital	Gen	Indep	50	20	20	0	6	710	
Cambridge Hospital	Gen	Indep	366	301	0	2	486		
Cambridge Relief Hospital	Gen	Indep	85	74	25	25	2	2,476	
Charlesgate Hospital	Gen	Indep	167	151	0	18	1 662		
Chester Hospital	Gen	Indep	85	51	20	0	6	710	
Canton, 5,816—Norfolk Co	Gen	Indep	366	301	0	2	486		
Massachusetts Hospital School	Ortho	State	366	301	0	2	486		
Chelsea, 45,816—Suffolk Co	Gen	Indep	85	74	25	25	2	2,476	
Chelsea Memorial Hospital	Gen	USPHS	167	151	0	18	1 662		
U S Marine Hospital	Gen	Navy	85	51	20	0	6	710	
U S Naval Hospital	Gen	Navy	366	301	0	2	486		
Chilcopee, 43,030—Hampden Co	Gen	Indep	85	74	25	25	2	2,476	
Health Department Hospital	TB	City	30	30	0	2	41		
Clinton, 12 817—Worcester Co	(Included in Clinton Hospital)	Indep	67	24	20	23	4	922	
Carter Memorial Hospital	Gen	Indlv	20	8	8	0			
Clinton Hospital	Gen	Indep	20	8	8	0			
Cohasset, 3,083—Norfolk Co	Gen	Indep	38	20	12	0	561		
Cohasset Private Hospital	Gen	Indlv	20	15	0	1	178		
Concord, 7,477—Middlesex Co	Gen	Indep	1,754	2,075	39	14	838		
Emerson Hospital	Gen	Indep	17	12	0	7	340		
Valleyhead	Nerv	Indlv	38	20	12	0	561		
Danvers 12,957—Essex Co	Mental State	Indep	1,754	2,075	39	14	838		
Danvers State Hospital	Gen	City	17	12	0	7	340		
Hunt Memorial Hospital	Gen	Indep	38	20	12	0	561		
Everett 48,424—Middlesex Co	Gen	Indep	38	20	12	0	561		
Whidden Memorial Hospital	Gen	Indep	38	20	12	0	561		
Fall River 115,274—Bristol Co	Gen	Indep	38	20	12	0	561		
Fall River General Hospital	Gen	Indep	38	20	12	0	561		
St Anne's Hospital	Gen	Church	90	50	26	36	9	1,332	
Truesdale Hospital	Gen	Indep	115	75	10	46	13	2,389	
Union Hospital	Gen	Indep	150	100	30	64	10	2,803	
Fitchburg, 40 092—Worcester Co	Gen	City	189	159	22	59	15	3,530	
Burbank Hospital	Gen	Indep	115	50	35	24	15	1,821	
Forest Hill (Boston P O)—Suffolk Co	Gen	Indep	115	50	35	24	15	1,821	
Forest Hills Hospital	Gen	Indep	115	50	35	24	15	1,821	
Foxboro, 5 347—Norfolk Co	Gen	Indep	115	50	35	24	15	1,821	
Foxboro State Hospital	Mental State	Indep	975	1,084	0	11	273		
Framingham, 22 210—Middlesex Co	Gen	Indep	130	76	30	54	10	2,156	
Framingham Union Hospital	Gen	Indep	130	76	30	54	10	2,156	
Gardner 19 399—Worcester Co	Gen	Indep	130	76	30	54	10	2,156	
Gardner State Colony	Mental State	Indep	1,118	1,344	0	7	202		
Henry Heywood Memorial Hospital	Gen	Indep	100	47	19	34	12	1,724	
Gloucester, 24 204—Essex Co	Gen	Indep	60	29	15	26	4	1,173	
Addison Gilbert Hospital	Gen	Indep	60	29	15	26	4	1,173	
Great Barrington 5 934—Berkshire Co	Gen	Indep	60	15	15	0	8	407	
Fairview Hospital	Gen	Indep	60	15	15	0	8	407	
Greenfield, 15,500—Franklin Co	Gen	Indep	88	59	18	36	4	1,213	
Franklin County Public Hospital	Gen	Indep	88	59	18	36	4	1,213	
Groton, 2 434—Middlesex Co	Gen	Indep	15	0	4	0			
Groton General Hospital	Gen	Indlv	15	0	4	0			
Haverhill, 48 710—Essex Co	Gen	Indep	107	82	18	74	4	2 852	
General Stephen Henry Gale Hospital	Gen	City	40	22	20			614	
Hale Hospital	Gen	City	40	22	20			614	
Haydenville, 1,300—Hampshire Co	Gen	Indep	100	101	0	3	102		
Hampshire County Sanat	TB	County	100	101	0	3	102		
Holbrook, 3,333—Norfolk Co	Gen	Indlv	18	11	0	2	31		
Elmhurst Sanitarium	Gen	Indlv	18	11	0	2	31		
Holden, 3,871—Worcester Co	Gen	Indep	26	18	6	0	6	603	
Holden District Hospital	Gen	Indep	26	18	6	0	6	603	
Holyoke 50 637—Hampden Co	Gen	Indep	134	78	16	60	10	2,220	
Holyoke Hospital	Gen	Indep	56	32	0	3	77		
Holyoke Tuber Sanatorium	TB	City	115	105	25	60	10	4,214	
Providence Hospital	Gen	Church	115	105	25	60	10	4,214	
Hyannis, 1 800—Barnstable Co	Gen	Indep	45	28	12	0	13	943	
Cape Cod Hospital	Gen	Indep	45	28	12	0	13	943	
Ipswich, 5,599—Essex Co	Gen	Indep	25	13	7	0	4	350	
Benjamin Stekney Cable Memorial Hospital	Gen	Indep	25	13	7	0	4	350	

MASSACHUSETTS—Continued

MASSACHUSETTS—Continued									
Hospitals and Sanatoriums	Type of Service	Control	Beds Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Sharon 3351—Norfolk Co			20	8		0	1	20	
Balfour Sanatorium	TB	Indiv	51	4		0			
Sharon Sanatorium	TB	Indep							
Somerville, 103 008—Middlesex Co	Gen	Indiv	55	33	24	0	7	1,832	
Central Hospital	Gen	Indiv	15	4	10	0	2	173	
Chandler Street Hospital	Gen	Indiv	70	47	30	44	12	1,603	
Somerville Hospital	Geo	Indep							
Southbridge 14264—Worcester Co			40	18	7	0	10	661	
Harrington Memorial Hosp	Gen	Indep							
South Dartmouth 1815—Bristol Co									
Sole Mar Orthopedic Hospital for Children	Ortho	Indep	100	55		0	5	55	
South Hanson 831—Plymouth Co									
Plymouth County Hospital	TB	County	150	113		0	4	0	
Springfield 140 900—Hampden Co									
City Hospital	Gen	City	112	133	18	0	3	854	
Health Department Hosp	TB Iso	City	160	68	3	0	14	170	
Mercy Hospital	Gen	Church	330	226	50	128	24	5,915	
Shriners Hospital for Crippled Children	Ortho	Frat	60	63		0	0	351	
Springfield Hospital	Gen	Indep	162	140	4	08	10	4,585	
Wesson Maternity Hospital	Mater	Indep	02	41	60	13	25	1,269	
Wesson Memorial Hosp	Gen	Indep	120	60		50	8	2,434	
Stockbridge 1702—Berkshire Co									
Austen Bkgs Foundation	Nerv	Indep	50	40		0	3	902	
Taunton 37 855—Bristol Co									
Morton Hospital	Gen	Indep	75	30	12	10		1,768	
Taunton State Hospital	Mental	State	1 224	1 551		41	21	503	
Tewksbury 5 585—Middlesex Co									
State Infirmary	Gen	State	3 150	2,017	40	53	33	3 240	
Vineyard Haven, 1 500—Dukes Co									
U S Marine Hospital	Gen	USPHS	24	23		0	3	104	
Waltham 29 247—Middlesex Co									
Dr Cousins Hospital	Gen	Indiv	17	4	5	0		1 00	
Metropolitan State Hosp	Mental	State	1 360	1 197		0	5	164	
Middlesex County Sanat	TB	County	252	214		0	10	420	
Waltham Hospital	Gen	Indep	130	95	01	0	10	2 860	
Ware 7,385—Hampshire Co									
Mary Lane Hospital	Gen	Indep	35	24	12	0	0	724	
Webster 12 992—Worcester Co									
Webster District Hospital	Gen	Indep	20	10	7	0	5	745	
Wellesley 11 429—Norfolk Co									
Channing Sanitarium	N&M	Indep	35	31		0	10	86	
Wiswall Sanatorium	N&M	Indep	32	25		0		27	
Westboro 6 409—Worcester Co									
Westboro State Hospital	Mental	State	1 296	1 436		21	24	535	
Westfield 19 775—Hampden Co									
Noble Hospital	Gen	Indep	108	35	13	20	8	1 224	
Westfield State Sanat	TB, Child	State	306	275		0	7	206	
Westwood 2 097—Norfolk Co									
Westwood Lodge	N&M	Indep	21	18		0	3	40	
Weymouth 20 882—Norfolk Co									
Weymouth Hospital	Gen	Indep	45	34	18	0	12	1 217	
Whitinsville 6 000—Worcester Co									
Whitinsville Hospital	Gen	Indus	10	13	7	0	3	700	
Winchendon 9 202—Worcester Co									
Millers River Hospital	Gen	Indep	25	16	6	10	2	617	
Winchester 12,719—Middlesex Co									
Winchester Hospital	Gen	Indep	65	32	20	40	7	1 330	
Winthrop 10,832—Suffolk Co									
Station Hospital	Gen	Army	80	13	6	0	8	654	
Winthrop Community Hosp	Gen	Indiv	38	27	20	0	5	1 080	
Woburn 10,434—Middlesex Co									
Charles Choate Memorial Hospital	Gen	Indep	41	34	10	26	2	800	
Worcester 195 311—Worcester Co									
Belmont Hospital	TB Iso	City	270	164		10	28	1 191	
Fairlawn Hospital	Gen	Indiv	45	20	16		0	1,020	
Harvard Private Hospital	Gen	Indep	25	0	5	0	0	322	
Louls Pasteur Hospital	Gen	Indep	30	3	0	0	3	140	
Memorial Hospital	Gen	Indep	185	123	30	06	10	4 740	
St Vincent Hospital	Gen	Church	240	153	25	75	10	3 680	
Worcester City Hosp	Gen	City	360	311	40	169	24	7 714	
Worcester County Sanat	TB	County	128	New		0	3		
Worcester Habnemann Hos									
Worcester State Hospital	Gen	Indep	111	62	20	50		1 811	
Wrentham 1 84—Norfolk Co	Mental	State	2 147	2 216		45	38	823	
Pondville Hospital									
Pondville Hospital	Cancer	State	110	113		0	13	907	
Related Institutions									
Ashmet 4 092—Bristol Co									
Ashley Sanitarium	Inst	Indiv	20	12		0		19	
Allerton 800—Plymouth Co									
Sturgis Hospital	Gen	Indiv	14	4	2	0	1		
Sylvester Hospital	Gen	Indiv	10	8	3	0	3	45	
Amherst 5,553—Hampshire Co									
Pratt Health Cottage	Inst	Indep	17			0	2	200	
Andover 0 060—Essex Co									
Ipsam Infirmary	Inst	Indep	2	3		0	3		
Baldwinsville 2,350—Worcester Co									
Hospital Cottages for Children	Child	Indep	120	90		0	0	13	
Belchertown 3119—Hampshire Co									
Belchertown State School	MenDef	State	1 200	1 201		0	4	120	
Boston 75118—Suffolk Co									
Boston Home for Incurables	Incur	Indep	25	20		0		12	
Deer Island Hospital	Inst	Cy&Co	25	16		0	0	340	
Detention Hospital	Iso	City	32	2	2	0	0	10	
Dorchester Cottage Hospital	Gen	Indep	12		8	0	2	108	
Dudley Hospital	Gen	Indiv	12	4	3	0	2	100	
East Boston Relief Station of the Boston City Hospi	Emerg	City	11	1	1	3	1	249	
Flornice (Clinton Home and Hospital)	Mater	Indep	21	13	47	0	2		

MASSACHUSETTS—Continued

REGISTERED HOSPITALS

JOUR A M A
MARCH 25, 1933

MASSACHUSETTS—Continued

Related Institutions	Type of Service	Control	Beds, Rated	Capacity	Average Patients	Basins	Student Nurses	RNs for Nursing	Patients Admitted
Haymarket Square Relief Station of the Boston City Hospital	Inst	City	20	0	0	0	0	1,867	21
Home for Jewish Children	Inst	State	40	0	0	0	0	207	401
Massachusetts State Prison	Inst	State	110	110	6	0	1	160	33
New England Home for Little Wanderers	Inst	State	16	8	10	0	0	80	385
Prendergast Preventorium	Inst	State	15	6	0	0	0	69	215
St Luke's Home for Convicts	Inst	State	215	210	0	0	0	178	303
Taitha Cuni Maternity Home and Hospital	Inst	State	32	12	0	0	0	516	1,500
Dr Taylor's Private Hosp	Inst	State	241	207	0	0	0	35	172
Washingtonian Home	Inst	State	8	3	0	0	0	585	17
Bruntree, 15,712—Norfolk Co	Inst	State	70	62	0	0	0	117	2,6
Bruntree Cottage Hospital	Inst	State	35	10	0	0	0	111	117
Brookline 47,400—Norfolk Co	Inst	State	15	10	0	0	0	217	89
Board of Health Hospital	Inst	State	20	4	0	0	0	0	0
Bosworth Hospital	Inst	State	135	122	0	0	0	0	0
Cambridge, 113,643—Middlesex Co	Inst	State	40	25	0	0	0	0	0
Holy Ghost Hospital for Incurables	Inst	State	94	94	0	0	0	0	0
Homburg Mem Infirmary	Inst	State	25	15	0	0	0	0	0
Camp Devens, Middlesex Co	Inst	State	14	7	0	0	0	0	0
Station Hospital	Inst	State	32	25	0	0	0	0	0
Chelsea, 45,516—Suffolk Co	Inst	State	115	100	0	0	0	0	0
Soldiers' Home	Inst	State	12	8	0	0	0	0	0
Draught, 6,912—Middlesex Co	Inst	State	17	9	0	0	0	0	0
Blanchard Private Hospital	Inst	State	60	25	0	0	0	0	0
Leapt 340—Plymouth Co	Inst	State	28	7	0	0	0	0	0
Children's Sunlight Hosp	Inst	State	60	20	0	0	0	0	0
Framingham, 22,210—Middlesex Co	Inst	State	25	9	0	0	0	0	0
Reformatory for Women	Inst	State	170	176	0	0	0	0	0
Woodside Cottages	Inst	State	12	8	0	0	0	0	0
Greenfield, 15,500—Franklin Co	Inst	State	9	2	0	0	0	0	0
Greenfield Isolation Hospital	Inst	State	14	10	0	0	0	0	0
Haverhill, 48,710—Issex Co	Inst	State	50	37	0	0	0	0	0
Benson Hospital	Inst	State	17	9	0	0	0	0	0
Contagious Hospital	Inst	State	60	25	0	0	0	0	0
Haverhill City Infirmary	Inst	State	25	9	0	0	0	0	0
Holyoke 56,537—Hampden Co	Inst	State	12	8	0	0	0	0	0
Carpenter Isolation Hospital	Inst	State	60	20	0	0	0	0	0
Lowell, 100,234—Middlesex Co	Inst	State	25	9	0	0	0	0	0
Chelmsford Street Hospital	Inst	State	9	2	0	0	0	0	0
Malden 58,030—Middlesex Co	Inst	State	14	10	0	0	0	0	0
Malden Contagious Hospital	Inst	State	50	37	0	0	0	0	0
Marblehead, 8,608—Essex Co	Inst	State	17	9	0	0	0	0	0
Children's Island Sanit	Inst	State	60	25	0	0	0	0	0
Medford, 59,714—Middlesex Co	Inst	State	25	9	0	0	0	0	0
Dearborn Hospital	Inst	State	12	8	0	0	0	0	0
Reeves Sanatorium	Inst	State	60	20	0	0	0	0	0
Methuen, 21,063—Essex Co	Inst	State	25	9	0	0	0	0	0
Henry C Nevins Home for Aged and Incurables	Inst	State	12	8	0	0	0	0	0
New England Penitentiary	Inst	State	60	20	0	0	0	0	0
Woodlawn Sanitarium	Inst	State	25	9	0	0	0	0	0
North Adams, 21,621—Berkshire Co	Inst	State	12	8	0	0	0	0	0
Dr Yrooman's Sanitarium	Inst	State	60	20	0	0	0	0	0
Pittsfield, 49,077—Berkshire Co	Inst	State	25	9	0	0	0	0	0
Pittsfield Anti Tuberc Assn Hospital and Coolidge Memorial Home	Inst	State	12	8	0	0	0	0	0
Rutland, 2,442—Worcester Co	Inst	State	60	20	0	0	0	0	0
Summit Cottage	Inst	State	25	9	0	0	0	0	0
Salem, 43,353—Essex Co	Inst	State	12	8	0	0	0	0	0
Health Dept Hospital for Contagious Diseases	Inst	State	60	20	0	0	0	0	0
Shirley, 2,427—Middlesex Co	Inst	State	25	9	0	0	0	0	0
Industrial School for Boys	Inst	State	12	8	0	0	0	0	0
City of Somerville, Contagious Disease Hospital	Inst	State	60	20	0	0	0	0	0
Springfield, 140,900—Hampden Co	Inst	State	25	9	0	0	0	0	0
Bucall Nursing Home	Inst	State	12	8	0	0	0	0	0
Hampden County Children's Preventorium	Inst	State	60	20	0	0	0	0	0
Renear Wilson Private Hosp	Inst	State	25	9	0	0	0	0	0
Swampscott, 10,340—Essex Co	Inst	State	12	8	0	0	0	0	0
Florence Crittenton Hope Cottage and Hospital	Inst	State	60	20	0	0	0	0	0
Waltham, 39,247—Middlesex Co	Inst	State	25	9	0	0	0	0	0
Teresian Lying In Hospital	Inst	State	12	8	0	0	0	0	0
Waiter E Fernand State School	Inst	State	60	20	0	0	0	0	0
Waltham Baby Hospital	Inst	State	25	9	0	0	0	0	0
Watertown, 34,913—Middlesex Co	Inst	State	12	8	0	0	0	0	0
Watertown Hospital	Inst	State	60	20	0	0	0	0	0
Wellesley, 11,439—Norfolk Co	Inst	State	25	9	0	0	0	0	0
Cedar Lodge	Inst	State	12	8	0	0	0	0	0
Convalescent Home of the Children's Hospital	Inst	State	60	20	0	0	0	0	0
Simpson Infirmary of Wellesley College	Inst	State	25	9	0	0	0	0	0
Westboro, 6,409—Worcester Co	Inst	State	12	8	0	0	0	0	0
Lyman School Hospital	Inst	State	60	20	0	0	0	0	0
West Concord, 1,851—Middlesex Co	Inst	State	25	9	0	0	0	0	0
Massachusetts Reformatory	Inst	State	12	8	0	0	0	0	0
West Pittsfield (Pittsfield P O)—Berkshire Co	Inst	State	60	20	0	0	0	0	0
Frederick S Coolidge Memorial Home	Inst	State	25	9	0	0	0	0	0
West Rutland 915—Worcester Co	Inst	State	12	8	0	0	0	0	0
Prison Camp and Hospital	Inst	State	60	20	0	0	0	0	0

Key to symbols and abbreviations is on page 911

Related Institutions

Related Institutions	Type of Service	Control	Beds, Rated	Capacity	Average Patients	Basins	Student Nurses	RNs for Nursing	Patients Admitted
Williamstown, 3,000—Berkshire Co	Inst	State	21	3	0	0	1	196	72
Williams College Infirmary	Inst	State	20	12	0	0	1	30	144
Worcester, 105,311—Worcester Co	Inst	State	1,578	1,605	0	0	0	0	0
Herbert Hill Hospital	Inst	State	21	3	0	0	1	196	72
Maple Hill Sanitarium	Inst	State	20	12	0	0	1	30	144
Wrentham, 3,584—Norfolk Co	Inst	State	1,578	1,605	0	0	0	0	0
Wrentham State School	Inst	State	21	3	0	0	1	196	72
Summery for Massachusetts	Inst	State	20	12	0	0	1	30	144
Hospitals and sanatoriums	Inst	State	217	45,946	41,006	0	0	0	0
Related Institutions	Inst	State	74	7,185	6,400	0	0	0	0
Totals	Inst	State	291	53,131	47,406	0	0	0	0
Refused registration	Inst	State	12	53,131	47,406	0	0	0	0

Hospitals and Sanatoriums

Hospitals and Sanatoriums	Type of Service	Control	City County	Beds Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Adrian 13,064—Lenawee Co	Gen TB	City	23	23	21	10	0	0	9	765
Imma L Bly Hospital	Gen	City		40	15	10	10	2		652
Lenawee Co Tuber Sanat	Gen	Part		10	4	4	0	1		83
Albion 8,324—Calhoun Co	Gen	Indiv		17	7	4	8	1		266
James W Sheldon Memorial Hospital	Gen	Indep		22	11	5	0	5		301
Allegan, 3,941—Allegan Co	Gen	Indiv		10	4	5	0	3		94
Emergency Hospital	Gen	Indiv		12	4	1	0	0		240
Alma 6,734—Gratiot Co	Gen	Church		50	25	15	60	10		2,400
Carney Private Hospital	Gen	Church		133	88	34	189	200		22,207
Alpena, 12,106—Alpena Co	Gen	State		64	57	0	0	2		245
Donald McRae Hospital	Gen	County		1,251	1,112	18	0	5		479
Ann Arbor, 26,044—Washtenaw Co	Gen	State		31	18	0	0	18		205
Ann Arbor Private Hosp	Gen	Indep		400	300	13	127	50		0,473
Merewood Sanitarium	Gen	County		1,000	75	66	0	0		0,473
St Joseph's Mercy Hosp	Gen	Church		180	84	20	59	12		2,186
Psychopathic Hosp at Univ of Michigan	Gen	Indep		87	40	13	52	11		2,601
University Hospital	Gen	City		22	14	6	0	0		480
University Hospital	Gen	Indep		43	26	3	0	10		925
University Hospital	Gen	Church		144	63	16	58	7		2,017
University Hospital	Gen	Indep		40	29	10	20	7		1,157
University Hospital	Gen	City		13	6	4	0	5		365
University Hospital	Gen	Indiv		15	7	4	0	3		300
University Hospital	Gen	Indep		220	103	20	20	0		0
University Hospital	Gen	Church		40	25	6	16	2		952
University Hospital	Gen	County		19	15	0	0	0		0
University Hospital	Gen	Indus		25	10	0	0	0		0
University Hospital	Gen	Mental Vet Ad		774	720	0	27	358		0
University Hospital	Gen	City		20	8	2	0	3		2,0
University Hospital	Gen	Part		10	5	4	0	2		182
University Hospital	Gen	City		20	0	7	0	3		230
University Hospital	Gen	Indiv		25	8	5	0	4		372
University Hospital	Gen	Indiv		14	4	2	0	1		172
University Hospital	Gen	Church		400	335	9	1	575		0
University Hospital	Gen	Indiv		12	4	4	0	3		144
University Hospital	Gen	Indep		66	17	6	0	8		711
University Hospital	Gen	Indep		239	229	30	14	5		6,4
University Hospital	Gen	City		700	707	14	0	200		20,884
University Hospital	Gen	City		51	40	0	16	1,880		0
University Hospital	Gen	Indep		80	35	15	0	13		1,604
University Hospital	Gen	Indiv		100	66	0	14	1,138		0
University Hospital	Gen	Indep		150	141	0	0	140		0
University Hospital	Gen	Indep		67	40	7	0	5		991
University Hospital	Gen	Indep		65	48	25	0	17		1,567
University Hospital	Gen	Church		115	58	20	62	11		2,505
University Hospital	Gen	Indep		66	64	0	5	01		0
University Hospital	Gen	Indiv		134	83	100	0	29		2,729
University Hospital	Gen	Indep		45	35	0	2	220		0
University Hospital	Gen	Indep		301	262	46	200	20		0,722
University Hospital	Gen	Indep		650	374	100	120	113		15,577
University Hospital	Gen	Indep		524	390	50	203	115		9,327

MICHIGAN—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated	Capacity	Average Patients	Inpatients	Student Nurses	RNs for Nursing	Patients Admitted
Herman Klefer Hosp +OOD	Gen TB City		1,335	1 147	65			263	12 036
Jefferson Clinic and Diagnostic Hospital+OOD	Gen	Indep	60	35	2	0	20	1	189
Lincoln Hospital	Gen	Indep	90	57	7	0			
Michigan Mutual Hosp	Indus	Indus	35	23		0	7		804
Miriam Memorial Hospital	(Included in Grace Hospital)								
Northwestern Hospital	Gen	Indep	26	4	0	0	1		170
Platte General Hospital	Gen	Indep	18	11	11	0	2		402
Providence Hospital+OB	Gen	Church	348	270	102	140	22	7 601	
St Joseph's Mercy Hosp +OOD	Gen	Church	108	71	32	70	13	2,923	
St Mary's Hospital+OOD	Gen	Church	345	272	30	65	10	7 164	
U S Marine Hospital	Gen	USPHS	132	130		0	17	1,239	
Warren Avenue Diagnostic Hospital	Gen	Indiv	16	11	4	0	6		
West Side Sanatorium	Gen	Indiv	30	15		0	3		157
Woman's Hospital+OOD	Mater	Indep	212	130	100		68	5 337	
Dowagiac 5550—Cass Co	Gen	Church	25	14	4	0	3		615
Lee Memorial Hospital	Gen	Indep	13	5	4	0	3		200
Durand 3,081—Shiawassee Co	Gen	Indiv	18	5	2	0	4		209
Durand Hospital	Gen	Indiv	18	5	2	0	4		209
Faton Rapids 2522—Eaton Co	Gen	Indiv	18	5	2	0	4		209
Harriet Chapman Hospital	Gen	Indiv	18	5	2	0	4		209
Eloise 710—Wayne Co	Gen	Indiv	18	5	2	0	4		209
Eloise Hospital for Mental Diseases	Mental	County	2 701	2 557		0			941
Eloise Infirmary+O	Gen	County	5,741	4 608		1	0 38	5 254	
Escanaba 14,524—Delta Co	Gen	Indiv	25	5		0			182
Lain Hospital	Gen	Church	70	45	20	0	5	1 405	
St Francis Hospital	Gen	Church	70	45	20	0	5	1 405	
Flint 156 492—Genesee Co	Gen	City	375	265	50				
Hurley Hospital+OOD	Gen	Church	42	40	20	0	10	1 521	
St Joseph's Hospital	Gen	Church	42	40	20	0	10	1 521	
Woman's Hospital	Gen	Indep	40	20	24	0	8	740	
St Wayne (Detroit P O)—Wayne Co	Gen	Army	35	14		0			203
Station Hospital	Gen	Army	35	14		0			203
Fremont 2 157—Newaygo Co	Gen	City	21	7	5	0	3		307
Gerber Memorial Hospital	Gen	City	21	7	5	0	3		307
Goodrich 324—Genesee Co	Gen	Indiv	25	10	2	0	3		789
Goodrich General Hospital	Gen	Indiv	25	10	2	0	3		789
Grand Haven 8 345—Ottawa Co	Gen	Indep	20	10	6	0	3		393
Elizabeth Hutton Mem Hosp	Gen	Indep	20	10	6	0	3		393
Grand Rapids 168 592—Kent Co	Gen	Indep	132	62	18	76	11	3 293	
Budget Mem Hosp +OOD	Gen	Indep	220	129	50	114	3	8 80	
Butterworth Hospital+OOD	Gen	City	53	41		0	8	910	
City General Hospital	Gen	City	53	41		0	8	910	
Ferguson Droste-Ferguson Sanitarium	Proct	Indep	33	13		0	3	609	
St Mary's Hospital+OOD	Gen	Church	218	127	35	80	7	4 601	
Sunshine Sanatorium+O	TB	City	135	144		4	12	162	
Grayling 1,973—Crawford Co	Gen	Church	30	20	8	15	8	932	
Grayling Mercy Hospital	Gen	Church	30	20	8	15	8	932	
Greenville, 4 780—Montcalm Co	Gen	Indep	10	12	6	0	3	440	
United Memorial Hospital	Gen	Indep	10	12	6	0	3	440	
Grosse Pointe 5 173—Wayne Co	Gen	Indiv	35	7	15	0		468	
Grosse Pointe Hospital	Gen	Indiv	35	7	15	0		468	
Grosse Pointe Farms (Detroit P O) 3 553—Wayne Co	Gen	Indep	45	30	13	0	13	1 407	
Cottage Hospital	Gen	Indep	45	30	13	0	13	1 407	
Hamtramck 56 268—Wayne Co	Gen	Church	40	26	6	0	8	772	
St Francis Hospital	Gen	Church	40	26	6	0	8	772	
Hancock 5,703—Houghton Co	Gen	Church	62	52	8	25	2	1 120	
St Joseph's Hospital	Gen	Church	62	52	8	25	2	1 120	
Harbor Beach 1 892—Huron Co	Gen	Indus	14	3	3	0	2	168	
Harbor Beach Hospital	Gen	Indus	14	3	3	0	2	168	
Hart 1 690—Oceana Co	Gen	Indep	20	10	6	0	4	435	
Oceana Hospital	Gen	Indep	20	10	6	0	4	435	
Hastings 5 277—Barry Co	Gen	Cy&Co	27	13	8	0	7	646	
Pennock Hospital	Gen	Cy&Co	27	13	8	0	7	646	
Highland Park 52,950—Wayne Co	Gen	City	160	85	35	67	4	3,006	
Highland Park Gen Hosp +OOD	Gen	City	160	85	35	67	4	3,006	
Hillsdale 5,896—Hillsdale Co	Gen	City	18	9	3	0			
Hillsdale Hospital	Gen	City	18	9	3	0			
Holland 14 346—Ottawa Co	Gen	City	50	20	14	0	11	917	
Holland City Hospital	Gen	City	50	20	14	0	11	917	
Houghton 3 757—Houghton Co	TB	County	52	52		0	4	34	
Copper Country Sanat	TB	County	52	52		0	4	34	
Howell 3 015—Livingston Co	Gen	City	25	12	6	0	4	350	
McPherson Memorial Hosp	Gen	City	25	12	6	0	4	350	
Michigan State Sanatorium	TB	State	490	415		0	39	330	
Hudson 2,361—Lenawee Co	Gen	City	20	9	4	0	4	253	
Thorn Memorial Hospital	Gen	City	20	9	4	0	4	253	
Ionla, 6 562—Ionla Co	Mental	State	792	704		0	0	58	
Ionla State Hospital	Mental	State	792	704		0	0	58	
Iron Mountain 11 652—Dickinson Co	Gen	City	28	11	8	0	5	572	
Iron Mountain Gen Hosp	Gen	City	28	11	8	0	5	572	
Ironwood 14 280—Gogebic Co	Gen	City	28	11	8	0	5	572	
Grand View Hospital	Gen	City	52	34	8	0	15	1 193	
Newport Hospital	Gen	Indus	12	10	3	0			
Twila City Hospital	Gen	Indiv	21	16	3	0	1	476	
Ishteping 9 235—Marquette Co	Gen	Indus	37	29	6	0	11	943	
Ishteping Hospital	Gen	Indus	37	29	6	0	11	943	
Jackson 3,337—Jackson Co	Gen	City	130	89	32	53	8	4 000	
W A Foote Mem Hosp +OOD	Gen	City	130	89	32	53	8	4 000	
Jackson County Sanat	TB	County	65	61		0	7	80	
Mercy Hospital	Gen	Church	100	70		53	7	2,901	
Kalamazoo 54 780—Kalamazoo Co	Gen	Church	214	111	27	87	20	3,525	
Kalamazoo Hospital	Gen	Church	214	111	27	87	20	3,525	
Bronson Methodist Hosp	Gen	Church	113	65	20	74	9	2 910	
Calhoun Memorial Hosp	TB	County	163	110		0	4	238	
Kalamazoo State Hosp +OOD	Mental	State	2 744	2,733		24	14	611	
Lake Linden 1 714—Houghton Co	Gen	Indus	12	7	4	0	1	24	
Lake Superior General Hosp	Gen	Indus	12	7	4	0	1	24	
Lakeview 30—Montcalm Co	Gen	Indiv	11	4	2	0			150
Lakeview Hospital	Gen	Indiv	11	4	2	0			150
Lansing 7,574—Ingham Co	Gen	Indep	115	57	20	69	12	2 153	
Edward W Sparrow Hos	Gen	Indep	115	57	20	69	12	2 153	
Ital+O	Gen	Indep	115	57	20	69	12	2 153	

MICHIGAN—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated	Capacity	Average Patients	Inpatients	Student Nurses	RNs for Nursing	Patients Admitted
Ingham Sanatorium	TB	County	110	84		0	8		98
St Lawrence Hospital	Gen	Church	100	77	28	50	2	3	269
Lapeer, 5 008—Lapeer Co	Gen	Part	18	0	4	0	2		190
Lapeer City Hospital	Gen	Part	18	0	4	0	2		190
Laurium 4,916—Houghton Co	Gen	Indep	25	19	6	0	4		687
Calumet Memorial Hospital	Gen	Indep	25	19	6	0	4		687
Ludington, 4,916—Mason Co	Gen	Cy&Co	22	13	3	0	4		452
Paulina Stearns Hospital	Gen	Cy&Co	22	13	3	0	4		452
Manistee, 8 078—Manistee Co	Gen	Church	60	25	0	17	3		702
Mercy Hosp and Sanit	Gen	Church	60	25	0	17	3		702
Manistique 5,198—Schoolcraft Co	Gen	Indiv	20	9	3	0	3		349
Shaw Private Hospital	Gen	Indiv	20	9	3	0	3		349
Munisco 510—Gogebic Co	Indus	Indiv	16	5		0	1		240
Charcoal Iron Co Hosp	Indus	Indiv	16	5		0	1		240
Marquette 14 789—Marquette Co	TB	County	87	70		0	8		107
Morgan Heights Sanat	Gen	Indep	68	34	16	25	5	2	043
St Luke's Hospital	Gen	Church	70	30	10	0	4		989
St Mary's Hospital	Gen	Church	70	30	10	0	4		989
Marshall 5 010—Calhoun Co	Gen	Indep	12	0	4	0	3		284
Onk Lawn Hospital	Gen	Indep	12	0	4	0	3		284
Menominee, 10 320—Menominee Co	Gen	Church	50	40	12	0			1,709
St Josephs Hospital	Gen	Church	50	40	12	0			1,709
Monroe 18 110—Monroe Co	Gen	Church	58	26	12	0	17		934
Mercy Hospital	Gen	Church	58	26	12	0	17		934
Monroa Hospital	Gen	Indep	38	31	8	0	0		950
Mt Clemens 13 497—Macomb Co	Gen	Church	150	64	12	41			2 155
St Joseph's Hospital and Sanitarium	Gen	Church	150	64	12	41			2 155
Station Hospital	Gen	Army	60	10	0	0	0		542
Mt Pleasant 5 211—Isabella Co	Gen	Part	10	10	3	0	5		476
Brondstetter Mem Hosp	Gen	Part	10	10	3	0	5		476
Munising 3 856—Alger Co	Gen	Indep	18	14	3	0			
Munising Hospital	Gen	Indep	18	14	3	0			
Muskegon, 41 390—Muskegon Co	Gen	Indep	108	57	17	50	7	2	166
Hackley Hospital	Gen	Church	100	78	24	60	10	2	631
Mercy Hospital	Gen	Church	100	78	24	60	10	2	631
Muskegon County Tubercu	TB	County	70	60		0	8		71
Isola Sanatorium	TB	County	70	60		0	8		71
Negaunee 6,552—Marquette Co	Gen	Indiv	20	5	3	0			
Dr Robbins Hospital	Gen	Indiv	20	5	3	0			
Twin City Hospital	Gen	Indus	15	7	3	0	0		234
Newberry 2 460—Luce Co	Gen	Indiv	20	5	3	0			
Newberry State Hospital	Mental	State	1,179	1 165		0	8		181
Perry Spinks Hospital	Gen	Part	15	10	0	0	2		441
Niles 11,320—Berrien Co	Gen	Indep	35	19	9	0	5		778
Pawling Hospital	Gen	Indep	35	19	9	0	5		778
Northville 2 566—Wayne Co	TB	Indiv	94	80		0	5		194
East Lawn Sanatorium	TB	Indiv	94	80		0	5		194
Wm H Maybury Sanat	TB	City	837	822		0	87		668
Norway 4 010—Dickinson Co	Gen	Indus	18	7	5	0	3		307
Penn Iron Mining Company Hospital	Gen	Indus	18	7	5	0	3		307
Omer 216—Arenac Co	Gen	Indiv	12	0	4	0			
Smith Hospital	Gen	Indiv	12	0	4	0			
Ontonagon 1 937—Ontonagon Co	TB	County	10	0		0	1		18
Bon Air Sanatorium	TB	County	10	0		0	1		18
Ontonagon Hospital	Gen	Indiv	12	7		0			
Oshkosh 125—Kalamazoo Co	TB	Indep	98	90		0	5		78
Pine Crest Sanatorium	TB	Indep	98	90		0	5		78
Owosso 14 496—Shiawassee Co	Gen	Indep	90	53	10	19	5	1	392
Memorial Hospital	Gen	Indep	90	53	10	19	5	1	392
Petoskey 5 740—Emmet Co	Gen	City	30	18	0	0	4		539
Lockwood Hospital	Gen	City	30	18	0	0	4		539
Petoskey Hospital	Gen	Indep	40	27	6	15	2		922
Pinekey 433—Livingston Co	Gen	Indiv	12	5	3	0	1		160
Pinekey Sanitarium	Gen	Indiv	12	5	3	0	1		160
Pialmwell 2,200—Allegan Co	Gen	City	17	0	6	0	4		297
Wm Cripe Hospital	Gen	City	17	0	6	0	4		297
Pompeii 310—Grafton Co	Gen	Indiv	16	4		0			
Pompeii Hospital	Gen	Indiv	16	4		0			
Pontline 64 928—Oakland Co	Iso	County	85	51		0	14		844
Oakland County Contagious Hospital	TB	County	171	170		0	22		207
Oakland Co Tuber Sanat	Gen	City	95	55	25	0	28		270
Pontiac General Hospital	Mental	State	1 703	1,751		0	0		192
Pontiac State Hospital	Gen	Church	175	65	25	60			2 290
St Joseph's Mercy Hosp	Gen	Church	175	65	25	60			2 290
Pt Huron 31,361—St Clair Co	Gen	Indep	52	37	10	24	8	1	585
Pt Huron Hospital	Gen	Indep	52	37	10	24	8	1	585
Powers 360—Menominee Co	TB	Counties	100	07		0	10		94
Pinecrest Sanatorium	TB	Counties	100	07		0	10		94
Reed City 1 792—Oscoda Co	Gen	City	10	5	3	0	3		160
Reed City Hospital	Gen	City	10	5	3	0	3		160
Royal Oak 22 604—Oakland Co	Gen	Indiv	19	10	4	0	3		410
Royal Oak Private Hospital	Gen	Indiv	19	10	4	0	3		410
Saginaw 80 170—Saginaw Co	Gen	City	35	21	5	0	3		401
Saginaw City Hospital	Iso	County	80	30		0	10		340
Saginaw Co Contag Hosp	TB	County	26	23		0	2		55
Saginaw Co Tuber Hosp	Gen	Indep	133	87	22	70	10	2	029
Saginaw General Hosp	Gen	Church	50	27	12	0	10		1 170
St Luke's Hospital	Gen	Church	156	82	20	60			2 570
St Mary's Hospital	Gen	Church	156	82	20	60			2 570
St Clair 3,359—St Clair Co	Gen	City	12	4	5	0			
St Clair Community Hosp	Gen	City	12	4	5	0			
St Johns 3,929—Clinton Co	Gen	Indep	50	16	10	0	7		710
Clinton Memorial Hospital	Gen	Indep	50	16	10	0	7		710
St Joseph 8,249—Berrien Co	Gen	Indep	25	13	4	0	5		218
St Joseph Sanitarium	Gen	Indep	25	13	4	0	5		218
Sandusky 1 300—Sanilac Co	Gen	Part	10	6	2	0	3		293
Tweedle Hospital	Gen	Part	10	6	2	0	3		293
Snult Ste Marie 13 750—Chippewa Co	Gen	Part	10	6	2	0	3		293
Chippewa County War Me	Gen	County	66	45	12	36	7	1	471
Sanilac Memorial Hospital	Gen	Army	16	11		0	0		194
Station Hospital	Gen	Army	16	11		0	0		194
South Haven 4 504—Van Buren Co	Gen	City	20	10	6	0	5		266
City Hospital	Gen	City	20	10	6	0	5		266
Penoyer Memorial Hospital	Gen	Part	15	10	6	0	3		263

MICHIGAN—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Stambaugh, 2,400—Iron Co General Hospital	Gen	Indus	27	0	6	0	4	340	
Sturgis, 6,070—St. Joseph Co Sturgis Memorial Hospital	Gen	City	38	15	6	0	10	584	
Three Rivers, 6,861—St. Joseph Co Three Rivers Hospital	Gen	City	30	11	5	0	6	540	
Traverse City, 12,539—Grand Traverse Co James Decker Munson Hosp	Gen	State	60	24	12	17	1	872	
Traverse City State Hosp + Mental State			2,115	2,228			11	464	
Trimountain, 1,541—Houghton Co Copper Range Hospital	Gen	Indus	20	7	1	0	3	220	
Wakefield, 3,677—Gogebie Co Wakefield Hospital	Gen	Indus	13	3	5	0	1	70	
Wyandotte 28,368—Wayne Co Wyandotte General Hosp	Gen	City	150	41	90	0	25	2,221	
Ypsilanti, 10,141—Washtenaw Co Beyer Memorial Hospital	Gen	City	36	17	6	0	7	604	
Ypsilanti State Hospital + Mental State			110	125			0	178	
Zeeland 2,850—Ottawa Co Thomas G. Hulzinga Memorial Hospital	Gen	Indep	14	5	3	0	2	184	
Related Institutions									
Addison 452—Ionia Co Add son Community Hosp	Gen	Indiv	5	2	2	0			
Alma, 6,734—Gratiot Co Michigan Masonic Home and Hospital	Inst	Frat	50	16	0	1	118		
Charlotte 5,307—Anson Co Community Hospital	Gen	Indep	0	2	2	0		40	
Cheboygan, 4,922—Cheboygan Co Cheboygan General Hosp	Gen	Indiv	12	New	3	0	2		
Coldwater 6,735—Branch Co Branch County Infirmary and Hospital	Inst	County	60	50	0		65		
Michigan State Public Sch	Inst	State	85	6	0		617		
Crystal Falls, 2,995—Iron Co Iron County Infirmary	Gen	County	65	6	0		202		
Detroit, 1,768,662—Wayne Co Memorial Hospital	Sk & Cn	Indiv	0	1	0	2	200		
Pennsylvania Ave Sanit	Conv	Indiv	10	4	0				
William Booth Mem Hosp	Mater	Church	22	8	28	0	3		
East Lansing, 4,389—Ingham Co Hospital of Michigan State College of Agriculture and Applied Science	Inst	State	35	2	0	4	492		
Farmington, 1,243—Oakland Co Children's Hospital	Conv	Indep	242	205	0		555		
Flint, 156,492—Genesee Co Genesee County Infirmary	Inst	County	35	10	4	0	1	787	
Michigan School for Deaf	Inst	State	35	5	0	2	042		
Grand Rapids, 168,592—Kent Co Holland Union Benev Home	Inst	Indep	9	6	0		25		
Kent Co Receiving Hosp	Mental	County	33	10	0	2	065		
Michigan Soldiers' Home Hospital	Gen	State	200	150	0	2	806		
Municipal Isolation Hosp	Iso	City	35	13	0	1	202		
Salvation Army Evangeline Booth Home and Hosp	Mater	Church	41	5	15	0	1	117	
Harrisville, 438—Alcona Co Dr. A. R. Miller's Private Hospital	Gen	Indiv	4	3	1	0	1		
Highland Park, 52,959—Wayne Co Sheppard Sanitarium	Gen	Indiv	25	12	2	0	110		
Ionia 6,562—Ionia Co Michigan State Reformatory	Inst	State	28	13	0	0	1	260	
Iron Mountain, 11,052—Dickinson Co Ford Motor Company Industrial Hospital	Indus	Indus	5	2	0	0	75		
Jackson, 55,187—Jackson Co Jackson County Contagious Hospital	Iso	Cy & Co	20	7	0	2	100		
Michigan State Prison Hospital	Inst	State	150	59	0	0	2	104	
Lansing, 78,397—Ingham Co Boys' Vocational School Hospital	Inst	State	50	12	0	1	768		
Lansing City Hospital	Iso	City	60	1	0	3	61		
Lapeer, 5,008—Lapeer Co Michigan Home and Training School	MenDef	State	3,713	3,427	0	3	277		
Marquette, 14,789—Marquette Co Hospital of the State House of Correction	Inst	State	24	0	0		288		
Mt. Clemens, 13,497—Macomb Co Sigma Gamma Convalescent Home for Crippled Child	Ortho	Indep	50	47	0	2	212		
Mt. Pleasant, 5,211—Isabella Co Mt. Pleasant Indian School Hospital	Inst	Indian	31	5	0	1	333		
Nahma, 710—Delta Co Bay View Hospital	Indus	Indus	0	3	0	0	86		
Northville, 2,566—Wayne Co Wayne County Training School	MenDef	County	800	068	0		151		
Okemos, 210—Ingham Co Ingham County Infirmary	Conv	County	30	30	0				
Pontiac, 64,928—Oakland Co Oakland County Infirmary	Inst	County	125	125	6	0	2	667	
Pt. Huron, 31,361—St. Clair Co Pt. Huron Emerg Hosp	Iso	City	18	2	6	0	3	63	
Rogers City, 3,278—Presque Isle Co Rogers City Hospital	Gen	Indiv	0	3	1	0	1	100	
Royal Oak, 22,904—Oakland Co Oakland Maternity Hosp	Mater	Indiv	10	3	0	0			

MICHIGAN—Continued

Related Institutions	Type of Service	Control	Beds, Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Shelby, 1,152—Oceana Co Shelby Community Hosp	Gen	Indep	0	3	4	0			
Unionville, 478—Tuscola Co Unionville General Hospital	Gen	Indiv	8	2	2	0	1	197	
Wahjamega, 111—Tuscola Co Michigan Farm Colony for Epileptics	I ph	State	055	810			0	2	106
West Branch, 1,164—Ogemaw Co Tolfree Memorial Hospital	Gen	City	15	0	3	0	2	420	
Summary for Michigan									
Hospitals and sanatoriums	Number	Beds	Average Patients	Patients Admitted					
Related Institutions	192	35,304	30,335	288,816					
Totals	254	45,435	30,106	302,514					
Refused registration	17	465							

MINNESOTA

Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Ada, 1,285—Norman Co Norman Co Mem Hosp	Gen	Indep	10	3	3	0	2	204	
Ah-gwah-ching 45—Cass Co Minnesota State Sanat	TB	State	850	263	0	27	256		
Albert Lea, 10,169—Freeborn Co Naevie Hospital	Gen	Indep	70	37	10	23	5	1,560	
Alexandria, 3,876—Douglas Co Douglas County Hospital	Gen	Indep	35	9	4	0	3	420	
St. Luke's Hospital	Gen	Indiv	10	7	3	0	3	270	
Anoka, 4,851—Anoka Co Gates' Hospital	Gen	Indiv	14	5	6	0			
Appleton, 1,025—Swift Co Kaufman Hospital	Gen	Indiv	15	0	3	0	2	337	
Austin 12,276—Mower Co St. Olaf Lutheran Hospital	Gen	Church	54	27	11	0	12	1,222	
Bagley, 885—Clearwater Co Clearwater Hospital	Gen	Indiv	13	4	2	0	1	118	
Barrett, 368—Grant Co Powers Hospital	Surg	Indiv	10	2	0	1	88		
Battle Lake, 552—Otter Tail Co Otter Tail County Sanat	TB	County	44	40	0	3	32		
Benndji, 7,202—Beltrami Co Lutheran Hospital	Gen	Indep	26	15	4	0	5	588	
Benson, 2,095—Swift Co Swift County Hospital	Gen	Indep	19	10	5	0	4	434	
Blwabik, 1,383—St. Louis Co Blwabik Hospital	Gen	Indiv	10	1	3	0		105	
Blue Earth, 2,884—Faribault Co Blue Earth Hospital	Gen	Indiv	10	5	4	0			
Braham, 579—Isanti Co Braham Hospital	Gen	Indiv	12	2	4	0	1	86	
Brainerd, 10,221—Crow Wing Co St. Joseph's Hospital	Gen	Church	85	48	15	0	6	1,660	
Breckenridge, 2,264—Wilkin Co St. Francis Hospital	Gen	Church	50	24	8	21	1	910	
Buffalo, 1,409—Wright Co Catlin Hospital	Gen	Indiv	12	6	3	0	1	296	
Caledonia, 1,554—Houston Co Caledonia Hospital	Gen	Indiv	15	8	8	0			
Canby, 1,738—Yellow Medicine Co John Swenson Mem Hosp	Gen	City	20	6	5	0	3	199	
Cannon Falls, 1,358—Goodhue Co Mineral Springs Sanatorium	TB	Counties	100	80	0	10	63		
Cloquet, 6,782—Carlton Co Ippard Hospital	Gen	Indiv	10	4	4	0	1	183	
Fond du Lac Indian Hosp	Gen	Indian	30	17	4	0	2	423	
Rafter Hospital	Gen	Part	30	17	5	0	3	703	
Cokato, 1,125—Wright Co Cokato Hospital	Gen	Indiv	15	0	3	0	3	284	
Crookston, 6,921—Polk Co Bethesda Hospital	Gen	Church	45	29	9	0	7	668	
St. Vincent's Hospital	Gen	Church	44	21	6	5	10	774	
Sunnyrest Sanatorium	TB	Counties	60	60	0	4	42		
Crosby, 3,451—Crow Wing Co Miner's Hospital	Gen	Indiv	20	8	6	0	1	223	
Dawson, 1,380—Lake of the Pines Co Dawson Surgical Hospital	Gen	Indep	25	10	4	8	2	378	
Deerwood, 552—Crow Wing Co Deerwood Sanatorium	TB	Counties	24	10	0	0	30		
Detroit Lakes, 3,675—Becker Co Community Hospital	Gen	Indep	21	10	0	0	4	407	
Duluth, 10,163—St. Louis Co Duluth Hospital	Gen	Indiv	20	5	4	2	1	1,5	
St. Luke's Hospital	Gen	Indep	237	149	33	65	19	4,668	
St. Mary's Hospital	Gen	Church	260	192	30	125	30	6,640	
Webber Hospital	Gen	Indiv	35	22	10	0	8	1,355	
Ellsworth, 644—Nobles Co Ellsworth Hospital	Gen	Indiv	10	3	3	0	1	50	
Ely, 6,166—St. Louis Co Shipman Hospital	Gen	Part	15	8	0	0	1	281	
Lytleth, 7,484—St. Louis Co More Hospital	Gen	Indiv	30	12	8	0	5	638	
Fairmont, 5,521—Martin Co Fairmont Hospital	Gen	Part	12	5	4	0	2	295	
Faribault, 12,767—Rice Co St. Lucas Deaconess Hosp	Gen	Church	51	40	14	20	10	1,100	
Farmington, 1,342—Dakota Co Community Hospital	Gen	Indiv	20	10	4	0		1,275	
Fergus Falls, 9,380—Otter Tail Co Fergus Falls State Hospital	Mental	State	1,900	1,793			46	27	596
George B. Wright Memorial Hospital	Gen	Indep	50	10	12	24		812	
St. Luke's Hospital	Gen	Church	70	18	9	14	10	640	

MINNESOTA—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
St Snelling 1,327—Hennepin Co Station Hospital	Gen	Army	72	25	1	0	6	40	
Veterans Admin Hospital	Gen	TB Vet Ad	534	509	1	0	60	2,351	
Forston 978—Polk Co Hospital	Gen	Part	15	5	4	0	2	125	
Craneville 909—Big Stone Co Western Minnesota Hospital	Gen	Indep	35	17	5	14	3	601	
Grand Rapids 3,906—Itasca Co Itasca County Hospital	Gen	County	44	19	7	0	4	750	
Cranite Falls 1,701—Yellow Medicine Co Granite Falls Hospital	Gen	Indiv	10	7	5	0	1	216	
Riverside Sanatorium	Gen	County	54	52	0	0	6	12	
Hallock 889—Kittson Co Kittson War Veterans Memorial Hospital	Gen	County	25	10	0	0	4	412	
Hastings 5,056—Dakota Co St Raphael Hospital	Gen	Indiv	18	10	5	0	5	300	
Hendricks 702—Lincoln Co Hendricks Hospital	Gen	Indep	10	0	4	0	0	0	
Heron Lake 786—Jackson Co Southwestern Minnesota Hospital	Gen	Indiv	10	5	1	0	1	100	
Hibbing 15,660—St Louis Co Adams Hospital	Gen	Indiv	25	10	6	0	1	503	
Rood Hospital	Gen	Indiv	40	16	10	0	4	82	
Hutchinson 1,406—McLeod Co Hutchinson Community Hospital	Gen	Indep	24	10	0	0	5	421	
International Falls 5,036—Koochichewig Co Craig Hospital	Gen	Indiv	18	7	6	0	0	322	
Northern Minnesota Hospital	Gen	Indep	40	11	6	0	2	322	
Jackson 2,206—Jackson Co Halloran Hospital	Gen	Indiv	10	5	3	0	2	210	
Lake City 3,210—Wabasha Co Lake City Hospital	Gen	Indep	19	6	4	0	4	30	
Lake Park, 624—Becker Co Sand Beach Sanatorium	TB	County	40	4	0	4	23	0	
Litchfield 2,850—Meeker Co Litchfield Hospital	Gen	Indep	29	17	6	1	7	70	
Little Falls, 1,014—Morrison Co St Gabriel's Hospital	Gen	Church	42	21	8	18	1	1,146	
Long Prairie 1,841—Flood Co Long Prairie Hospital	Gen	Indiv	10	3	2	0	1	192	
Luverne 2,644—Rock Co Luverne Hospital	Gen	Part	10	4	0	0	1	20	
Madelia 1,297—Watonswan Co Madelia Hospital	Gen	Indiv	1	4	4	0	1	145	
Madison 1,016—Lac qui Parle Co Ebenezer Lutheran Hospital	Gen	Church	25	9	0	0	1	250	
Mankato 14,035—Blue Earth Co Immanuel Hospital	Gen	Church	60	32	1	20	2	908	
St Joseph's Hospital	Gen	Church	125	50	15	0	4	1,658	
Marshall 3,250—Lyon Co Marshall Hospital	Gen	Indep	30	10	0	8	0	44	
Melrose 1,801—Stearns Co Melrose Hospital	Gen	Indiv	10	3	4	0	1	25	
Minneapolis 464,306—Hennepin Co Abbott Hospital	Gen	Church	80	54	18	0	12	2,400	
Asbury Hospital	Gen	Church	12	82	20	70	12	2,000	
Fitel Hospital	Gen	Indep	100	81	20	70	3	1,060	
Fairview Hospital	Gen	Church	200	124	25	07	8	3,974	
Harriet Walker Hospital	Matr	Indep	50	15	15	0	5	161	
Hill Crest Surgical Hosp	Gen	Indep	51	35	24	5	7	1,448	
Lutheran Deaconess Home and Hospital	Gen	Church	120	92	40	65	12	320	
Maternity Hospital	Matr	Indep	54	61	15	25	1	1,001	
Minneapolis Gen Hosp	Gen	City	583	150	60	219	25	9,763	
Northern Hospital	Gen	Indep	167	130	30	61	15	4,227	
St Andrew's Hospital	Gen	Church	80	60	20	41	0	3,110	
St Barnabas Hospital	Gen	Church	141	74	25	60	9	2,541	
St Mary's Hospital	Gen	Church	300	115	30	174	15	4,263	
Shriners Hospital for Crippled Children	Ortho	Frat	60	60	0	0	0	241	
Swedish Hospital	Gen	Indep	271	184	42	123	17	1,148	
University Hospitals	Gen	State	420	332	10	114	5	6,412	
Montevideo 4,319—Chippewa Co Montevideo Hospital	Gen	Indep	40	1	10	11	5	1,421	
Moorhead 7,601—Clay Co St Ansgar's Hospital	Gen	Church	40	0	10	25	0	1,201	
Moose Lake 747—Carlton Co Moose Lake Community Hospital	Gen	Indiv	10	0	0	0	2	130	
Morris 2,474—Stevens Co Morris Hospital	Gen	Indiv	1	6	4	0	2	223	
Mountain Lake 1,555—Cottonwood Co Bethel Hospital	Gen	Church	21	7	0	0	0	25	
New Prague 1,541—Le Sueur Co New Prague Community Hospital	Gen	Indep	20	9	1	0	0	22	
New Ulm 7,505—Brown Co Loritto Hospital	Gen	Church	4	25	0	0	0	769	
Union Hospital	Gen	Indep	40	4	10	22	0	1,060	
Wadena 12—St Louis Co Wadena Sanatorium	TB	County	230	27	0	11	25	0	
Northfield 4,155—Rice Co Northfield Hospital	Gen	Indep	12	4	0	0	0	147	
Oak Terrace—Hennepin Co Glen Lake Sanatorium	TB	County	0	0	0	0	0	410	
Onigum 19—Cass Co Chippewa Tuberculosis Sanatorium and General Hosp	Gen	TB Indiv	75	71	4	0	4	425	
Ortonville 2,017—Big Stone Co Ortonville Evangelical Hosp	Gen	Church	20	6	4	0	2	273	
Watonswan 654—Steel Co Watonswan City Hospital	Gen	City	40	22	0	1	4	3	

MINNESOTA—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Parkers Prairie 631—Otter Tail Co Leibold Hospital	Surg	Indiv	12	3	0	0	2	127	
Paynesville 1,121—Stearns Co Paynesville Hospital	Gen	Indiv	12	0	3	0	0	100	
Perham 1,411—Otter Tail Co St James Hospital	Gen	Church	35	15	5	0	0	760	
Pipestone 3,489—Pipestone Co Ashton Memorial Hospital	Gen	Cy & Co	43	15	4	0	4	841	
Pokegama, Pine Co Pokegama Sanatorium	TB	Indep	36	26	4	1	43	0	
Princeton 1,626—Mille Lacs Co Northwestern Hospital	Gen	Indep	35	12	6	0	8	517	
Puposky 63—Beltrami Co Lake Julia Tuberc Sanat	TB	County	53	52	0	3	39	0	
Redlake 214—Beltrami Co Red Lake Indian Hospital	Gen	Indian	25	21	0	0	3	495	
Red Wing 9,029—Goodhue Co Red Wing Hospital	Gen	City	35	23	6	0	8	877	
St John's Hospital	Gen	Indep	70	42	15	27	5	1,190	
Redwood Falls, 2,552—Redwood Co Redwood Falls Hospital	Gen	Part	15	5	4	0	1	309	
Richmond 604—Stearns Co Richmond Hospital	Gen	Indep	10	4	2	0	1	321	
Rochester 20,621—Olmsted Co Colonial Hospital	Gen	Indep	260	190	260	25	0	3,850	
Kahler Hospital	Gen	Indep	105	81	260	8	2	767	
Rochester State Hospital	Mental	State	1,534	1,522	31	7	534	0	
St Mary's Hospital	Gen	Church	567	346	26	222	42	7,843	
Worrell Hospital and Annex	Gen	Indep	101	115	260	7	8	649	
Roseau 1,023—Roseau Co Budd Hospital	Gen	Indiv	12	4	3	0	0	250	
St Cloud 21,000—Stearns Co St Cloud Hospital	Gen	Church	181	100	70	58	11	0	625
Veterans Admin Hospital	Mental	Vet Ad	50	20	0	17	57	0	
St James 2,863—Watonswan Co St James Hospital	Gen	Church	15	8	6	0	4	312	
St Paul 271,006—Ramsey Co Ancker Hospital	Gen	Cy & Co	1,000	703	50	291	38	0	690
Bethesda Hospital	Gen	Church	90	72	14	60	14	2	362
Charles T. Miller Hosp	Gen	Indep	185	124	21	24	24	2,091	
Children's Hospital	Chil	Indep	65	20	0	0	1	130	
Gillette State Hospital for Crippled Children	Ortho	State	250	231	42	16	0	625	
Midway Hospital	Gen	Church	101	86	25	109	14	2	403
Mounds Park Sanatorium	Gen	Church	125	92	12	100	16	1	485
Northern Pacific Beneficial Association Hospital	Gen	Indep	100	80	12	24	13	2	475
St John's Hospital	Gen	Church	75	53	15	43	8	2,710	
St Joseph's Hospital	Gen	Church	246	107	24	139	17	0	1,130
St Luke's Hospital	Gen	Church	125	67	25	02	11	2	265
St Paul Hospital	Gen	Church	50	24	12	0	0	803	
West Side General Hospital	Gen	Church	50	32	10	0	12	751	
St Peter 4,811—Mallett Co Covell Hospital	Gen	Indiv	30	12	10	0	3	350	
St Peter State Hospital	Mental	State	2,037	1,758	36	14	592	0	
Slayton 1,102—Murray Co Home Hospital	Gen	Part	22	10	4	13	5	410	
Soudan 20—St Louis Co Soudan Hospital	Gen	Indus	15	10	4	0	0	0	
Springfield 2,049—Brown Co St John's Hospital	Gen	Church	21	0	0	0	3	311	
Spring Grove 867—Houston Co Spring Grove Hospital	Gen	Indep	15	7	0	0	2	269	
Starbuck 781—Pope Co Minnewaska Hospital	Gen	Indep	15	6	5	0	2	254	
Stillwater 7,173—Washington Co Lakeview Memorial Hospital	Gen	Cy & Co	38	18	0	17	5	637	
Thief River Falls 4,268—Pennington Co Oakland Park Sanatorium	TB	County	40	35	0	0	1	25	
Physicians Hospital	Gen	Indep	25	10	5	8	1	512	
St Luke's Hospital	Gen	Indep	38	20	0	0	8	604	
Tracy 2,750—Iyon Co Clinch Hospital	Gen	Part	16	4	4	0	2	250	
Tracy Hospital	Gen	Indiv	17	8	4	0	1	418	
Two Harbors 4,425—Lake Co Burns & Christensen Hosp	Gen	Part	40	20	0	0	0	0	
Tyler 905—Lincoln Co Tyler Hospital	Gen	Indep	16	0	3	0	2	402	
Virginia 11,063—St Louis Co Tenont Hospital	Gen	Indiv	15	2	7	0	3	213	
Virginia General Hospital	Gen	Indiv	15	6	4	0	2	258	
Wabasha 2,212—Wabasha Co Buena Vista Sanatorium	TB	County	26	24	0	0	1	14	
St Elizabeth's Hospital	Gen	Church	38	20	6	0	1	420	
Wadena 2,512—Wadena Co Fair Oaks Lodge Sanat	TB	County	5	0	0	0	46	0	
Waseley Hospital	Gen	Church	45	16	0	11	124	0	
Walker 615—Cass Co Walker Hospital	Gen	Indiv	26	25	4	0	2	238	
Warren 1,472—Marshall Co Warren Hospital	Gen	Church	30	11	6	0	2	352	
Waseca 3,551—Waseca Co Waseca Memorial Hospital	Gen	City	25	10	7	0	4	322	
Wheaton 1,275—Traverse Co Wheaton Hospital	Gen	Indiv	12	7	5	0	0	364	
White Earth 41—Becker Co White Earth Indian Hosp	Gen	Indian	25	19	6	0	2	412	
Willmar 6,173—Kandiyohi Co General Hospital	Gen	Part	24	13	6	6	1	454	
Willmar Hospital	Gen	Indep	24	16	4	0	8	525	
Windsor 2,125—Cottonwood Co Windsor Hospital	Gen	City	13	6	2	0	3	252	
Winnipeg 1,701—Faribault Co Winnipeg Community Hos	Gen	Part	10	0	4	0	2	0	

MINNESOTA—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated	Capacity	Average Patients	Basinsets	Student Nurses	RNs for Nursing	Patients Admitted
Winona, 20 550—Winona Co Winona General Hospital	Gen	Indep	110	46	10	30		2,252	
Worthington, 1,578—Nobles Co Southwestern Minnesota Tu berculosis Sanatorium	TB	Counties	54	53		0	4	51	
Worthington Clinic Hospital	Gen	Part	20	12	5	0	2	500	
Worthington Hospital	Gen	Indiv	10	10	0	0	4	300	
Related Institutions									
Attkin, 1,545—Attkin Co Beecroft Hospital	Gen	Indiv	10	1	4	0	0	33	
Anoka, 4,551—Anoka Co Anoka State Asylum		Mental State	1,100	1,040				45	
Buhl, 1,664—St. Louis Co St. Louis County Hosp	Inst	County	42	32		0	4	270	
Cambridge, 1,128—Isanti Co Minnesota Colony for Imp ileptics	MenDef	State	650	461		0	2	135	
Collegeville, Stearns Co St. John's University Hosp	Inst	Indep	42	10		0	1	400	
Detroit Lakes, 1,675—Becker Co Detroit Hospital	Gen	Indiv	7	2	2	0	2	72	
Duluth 101,463—St. Louis Co Contagious Hospital	Iso	City	20	4		0	1	77	
St. Louis County Almshouse Dispensary	Inst	County	90	70		0	3	578	
Elv, 6,156—St. Louis Co Detention Hospital	Iso	City	10	2		0	1	13	
Faribault, 12,767—Rice Co Minnesota School for Feeble minded	MenDef	State	2,200	2,066		0	3	340	
Minnesota School for Deaf	Inst	State	17	5		0	1	169	
Gaylord, 812—Sibley Co Gaylord Hospital	Surg	Indiv	8	2		0	1		
Glenwood, 2,220—Pope Co Glenwood Hospital	Gen	Part	10	2	3	0	2	137	
Greenbush, 187—Roseau Co General Hospital	Gen	Indiv	6	2	2	0			
Hastings, 5,086—Dakota Co Hastings State Asylum		Mental State	1,694	1,018		0	1	133	
Hibbing, 15,666—St. Louis Co Hibbing Detention Hospital	Iso	City	10	4		0	2	40	
Minneapolis, 464 356—Hennepin Co Barton Loring Home for Convalescents	Conv	Indep	25	15		0	1	175	
Homewood Hospital	Conv	Part	20	15		0	4	140	
Minneapolis Sanitarium	N&M	Indiv	12	8		0	1	40	
Minnesota Sanitarium	N&M	Indiv	20	0		0			
Minnesota Soldiers' Home Hospital	Inst	State	91	75		0	1	152	
Parkview Sanatorium	Chron	City	177	157		0		107	
Portland Resthome	N&M	Indiv	10	8		0	2		
Rest Home	Conv	Indiv	17	13		0	1	14	
Rest Hospital	N&M	Part	17	14		0	5	132	
Riverside Hospital	N&M	Indiv	14	8		0	3	202	
Vocational Nursing Home	Conv	Indep	48	23		0	2	66	
Mudbaden, Scott Co Mudbaden Sulphur Springs	Conv	Indep	90	17		0	0	1,112	
Owatonna, 7,654—Steele Co Minnesota State Public School	Inst	State	60	26		0	1	186	
Pelican Rapids, 1,365—Otter Tail Co Dr. Boyens Hospital	Gen	Indiv	12	3	4	0	1	60	
Pelican Rapids Hospital	Gen	Indiv	7	3	3	0	1	04	
Pipestone, 3,489—Pipestone Co Pipestone Indian School Hos pital	Gen	Indian	35	4		0	3		
Red Wing, 0,029—Goodhue Co Minnesota State Training School for Boys	Inst	State	20	4		0	1	689	
Rochester, 20,621—Olsted Co Cascade Sanitarium	Conv	Indiv	20	10		0	2	280	
Samaritan Hospital	Conv	Church	120	60		0	3		
St. Cloud, 21,000—Stearns Co Minnesota State Reforma tory Hospital	Inst	State	31	24		0	0	533	
St. Paul, 271,606—Ramsey Co Children's Preventorium of Ramsey County	TB	Indep	80	07		0	4	89	
Mrs. Robbins Rest Home	N&M	Indiv	13	5		0	3	23	
Salvation Army Home and Hospital	Mater	Church	50	25	40	0		129	
Sauk Center, 2,716—Stearns Co Long Hospital	Gen	Indiv	0	1	5	0	0	100	
Shakopee, 2,023—Scott Co Mudcura Sanitarium	Conv	Indep	100	24		0	1	1 112	
Stillwater, 7,173—Washington Co Minnesota State Prison Hos pital	Inst	State	58	10		0	0	2.8	
Virginia, 11,063—St. Louis Co City Detention Hospital	Iso	City	37	4		0	1	11	
Watertown, 594—Carver Co Cottage Hospital	Gen	Indiv	8	1	2	0			
Shrader and Leo Hospital	Gen	Indiv	6	2	3	0	1	135	
Wayzata, 1,100—Hennepin Co Minnetonka Hospital	Gen	Indiv	13	3	3	0	4	108	
Willmar, 0,173—Kandiyohi Co Willmar State Asylum		Mental State	1,250	1,045		0			
Summary for Minnesota									
Hospitals and sanatoriums	Number	Beds	Average Patients	Patients Admitted					
Related Institutions	173	19,090	14,496	105,234					
	46	8,426	0,433	8,211					
Totals	219	27,516	20,029	203,445					
Refused registration	8	102							

MISSISSIPPI

Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated	Capacity	Average Patients	Basinsets	Student Nurses	RNs for Nursing	Patients Admitted
Aberdeen, 3,025—Monroe Co Aberdeen Hospital	Gen	Indep	24	4	3	0	2	618	
Amory, 3,214—Monroe Co Glinmore Sanitarium	Gen	Indep	30	14	2	9	1	610	
Biola, 14,850—Harrison Co Biola Hospital	Gen	Indep	50	16	8	0	2	765	
Booneville, 1,103—Prentiss Co North East Mississippi Hos pital	Gen	Indep	50	32		7	1	432	
Brookhaven, 5 288—Lincoln Co Kings Daughters Hospital	Gen	Church	50	6	7	0	0	466	
Canton, 4,725—Madison Co Madison County Kings Daugh ters Hospital	Gen	Indep	20	1	5	0	1	260	
Centerville, 1,344—Wilkinson Co Feld Memorial Hospital	Gen	Part	28	12	4	10	3	3.0	
Charleston, 2,014—Tallahatche Co Charleston Hospital	Gen	Indiv	16	2	2	0	2	110	
Clarksdale, 10 034—Coahoma Co Clarksdale Hospital	Gen	Indep	22	0	4	0	4	475	
Columbia, 4,833—Marion Co Columbia Clinic Hospital	Gen	Indiv	35	20	4	12	3	642	
Columbus, 10,743—Iowndes Co Columbus Hospital	Gen	Indiv	30	10	2	0	5	145	
Fite Hospital	Gen	Indiv	35	15	5	6	1	425	
Corinth, 0,250—Alcorn Co Corinth Hospital	Gen	Indiv	12	2	3	0	2	117	
McRae Hospital	Gen	Indep	65	6	5	10	1	231	
Electra Mills, 1,684—Kemper Co George O. Hixon Memorial Hospital	Gen	Indus	50	0	0	0		405	
Greenville, 14,807—Washington Co Kings Daughters Hospital	Gen	Indep	100	32	14	20	5	1,591	
Greenwood, 11,123—Leflore Co Greenwood Leflore Hospital	Gen	Cy & Co	25	8	6	7	0	370	
Grenada, 4,349—Grenada Co Grenada General Hospital	Gen	Part	50	12	8	0	1	600	
Gulfport, 12,547—Harrison Co Kings Daughters Hospital	Gen	Church	75	17	8	11	2	889	
Veterans Admin Hospital	Mental	Vet Ad	504	506		0	10	570	
Hattiesburg, 18 601—Forrest Co Methodist Hospital	Gen	Church	75	21	12	24	3	1 221	
South Mississippi Infirm	Gen	Indiv	05	16	10	12	1	846	
Houston, 1,477—Chickasaw Co Houston Hospital	Gen	Indep	40	17	8				
Jackson, 48 282—Hinds Co Jackson Infirmary	Gen	Indiv	55	17	12	20	1	1,429	
Mississippi Baptist Hosp	Gen	Church	70	53	0	54	4	4,980	
M'sissippi State Charity Hospital	Gen	State	105	86	10	35	3	3,694	
Mississippi State Hospital	Mental	State	2,600	2,600		0	0	1,383	
Dr. Willis Walley Hospital	Gen	Indiv	70	14	8	14	2	702	
Laurel, 18 017—Jones Co Laurel General Hospital	Gen	Indiv	50	12	0	11	8	783	
South Mississippi Charity Hospital	Gen	State	125	88	12				
Lexington, 2,580—Holmes Co Holmes County Community Hospital	Gen	Indep	25	5	2	0	2	302	
Macon, 2,198—Noxubee Co Macon Hospital	Gen	Indiv	20	5	2	0	3	210	
McComb, 10,057—Pike Co McComb City Hospital	Gen	Indiv	25	10	2	8	0	757	
McComb Infirmary	Gen	Indiv	25	7	2	8	1	012	
Meridian, 31,054—Lauderdale Co Anderson Infirmary	Gen	Indiv	45	13	5	14		700	
East Mississippi State Hosp	Mental	State	900	873		0	1	298	
Matty Hersee Hospital	Gen	State	100	85	10	18	1	2,874	
Meridian Sanitarium and Clinic	Gen	Indep	55	15	12	10	2	792	
Dr. F. G. Riley's Children, Maternity, General Hospital and Clinic	Gen	Indiv	25	9	6	0	4	436	
Rush's Infirmary	Gen	Part	50	18	6	11	4	700	
Natchez, 13 422—Adams Co Chamberlain Rice Hospital	Gen	Indep	75	18	0	10	3	500	
Natchez Charity Hospital	Gen	State	110	72	8	17	2	2,600	
Natchez Sanitarium	Gen	Indep	40	15	7	12	3	780	
New Albany, 3,187—Union Co Mayes Hospital	Gen	Indep	25	0	4	0	2	600	
New Albany Hospital and Clinic	Gen	Indep	12	3	2	0	1	205	
Newton, 2 011—Newton Co Newton Infirmary	Gen	Indiv	25	7	3	0	0	514	
Oxford, 2,890—Ifayette Co Bramlett Hospital	Gen	Part	25	4	5	3	2	261	
Oxford Hospital	Gen	Indiv	30	12	5			766	
Pascagoula, 4,339—Jackson Co Jackson County Hospital	Gen	County	24	5	4	0	4	285	
Philadelphia, 2,560—Neshoba Co Choctaw Mississippi Hosp	Gen	Indian	31	10	0	0			
Philadelphia Hospital	Gen	Indiv	14	0	2	0	4	278	
Pleayune, 4 698—Pearl River Co Martin Sanatorium	Gen	Indiv	24	10	2	0	2		
Poplarville, 1,498—Pearl River Co Pearl River County Hospital	Gen	Indep	20	3	2	4	1	228	
Rosedale, 2,117—Bolivar Co Kings Daughters Hospital	Gen	Indep	12	4	2	0	1	140	
Sanatorium 61—Simpson Co Mississippi State Tuberculo sis Sanatorium	TB	State	480	327		0	26	305	
Starkville, 3,012—Oktibbeha Co Oktibbeha Hospital	Gen	Indiv	18	6	3	0	1	225	
Tupelo, 6,361—Lee Co Tupelo Hospital	Gen	Indep	35	8	2	10		560	

MISSISSIPPI—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Vicksburg 22 943—Warren Co Mississippi State Charity Hospital	Gen	State	110	01	8	18	3	6,244	
Vicksburg Hospital	Gen	Indep	52	22	3	18	3	1,323	
Vicksburg Infirmary	Gen	Indiv	100	42	5	24	1	1,200	
Vicksburg Sanitarium and Crawford Street Hosp	Gen	Indep	75	33	6	38	4	1,460	
Water Valley 3 733—Yalobusha Co	Gen	Part	25	8	3	4	1	191	
Water Valley Hospital	Gen	Part	25	8	3	4	1	191	
West Point 4 677—Clay Co	Gen	Indiv	25	12	6	0	1	361	
Ivy Hospital	Gen	Indiv	25	12	6	0	1	361	
Winona 2 607—Montgomery Co	Gen	Indep	35	7	2	8	2	233	
Winona Infirmary	Gen	Indep	35	7	2	8	2	233	
Yazoo City 5 579—Yazoo Co	Gen	Indep	25	3	0	0	4	316	
Kings Daughters Hospital	Gen	Indep	25	3	0	0	4	316	

Related Institutions

A and M College 220—Oktibbeha Co	State	44	5	0	1	343			
James Z George Mem Hosp Inst	State	44	5	0	1	343			
Biloxi 14,800—Harrison Co	Inst	70	50	0	0	75			
Jefferson Davis Soldiers Home	Inst	70	50	0	0	75			
Oary 419—Sharkey Co	Gen	Indiv	7	1	0	0	32		
Dr W O Pool's Sanit	Gen	Indiv	7	1	0	0	32		
Clarksdale 10 034—Coahoma Co	Gen	Part	15	6	0	0			
Ancient Order of Watchmen Hospital (col)	Gen	Part	15	6	0	0			
Ellisville 2 127—Jones Co	Men	Def	500	300	0	0			
Ellisville State School	Men	Def	500	300	0	0			
Greenville 14,507—Washington Co	Gen	Indep	50	12	0	0	176		
Kings Daughters Hosp (col)	Gen	Indep	50	12	0	0	176		
Greenwood 11 123—Leflore Co	Gen	Indiv	15	4	0	1	85		
Greenwood Colored Hospital	Gen	Indiv	15	4	0	1	85		
Meridian 31,904—Lauderdale Co	TB	Indep	44	36	0	1	30		
Kings Daughters Tuberculosis Hospital	TB	Indep	44	36	0	1	30		
Okolona 2,235—Chickasaw Co	Gen	Indiv	0	3	1	0	100		
Wicks Hospital	Gen	Indiv	0	3	1	0	100		
University 15—Lafayette Co	Inst	State	20	4	0	1	289		
Univ of Mississippi Hosp	Inst	State	20	4	0	1	289		

Summary for Mississippi

Hospitals and sanatoriums	Number	Beds	Average Patients	Patients Admitted
Related institutions	0	7 762	5 562	56,223
Total	70	8 121	5 037	57,307
Refused registration	2	72		

MISSOURI

Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Bonne Terre, 4 021—St. Francois Co	Gen	Indep	30	17	7	0	7	537	
Bonne Terre Hospital	Gen	Indep	30	17	7	0	7	537	
Boonville 6 435—Oooyer Co	Gen	Church	70	26	14	10	11	802	
St. Joseph's Hospital	Gen	Church	70	26	14	10	11	802	
Butler 2,000—Bates Co	Gen	Indiv	10	4	2	0	2	202	
Butler Community Hospital	Gen	Indiv	10	4	2	0	2	202	
Callonia 2 304—Moniteau Co	Gen	Indiv	33	10	2	0	1	1,290	
Latham Sanitarium	Gen	Indiv	33	10	2	0	1	1,290	
Cape Girardeau 16 227—Cape Girardeau Co	Gen	Church	40	20	6	0	9	923	
St. Francis Hospital	Gen	Church	40	20	6	0	9	923	
Southwest Missouri Hospital	Gen	Indep	60	27	6	0	8	1,008	
Carrollton 4 005—Carroll Co	Gen	Indiv	12	5	2	0	2	163	
Cook's Hospital	Gen	Indiv	12	5	2	0	2	163	
Carthage 9 736—Jasper Co	Gen	Indiv	20	10	2	0	2	376	
Chapman Hospital	Gen	Indiv	20	10	2	0	2	376	
McCune-Brooks Hospital	Gen	City	35	15	6	0	7	700	
Chillicothe 8 177—Livingston Co	Gen	Part	20	10	2	0	1	500	
Chillicothe Hospital	Gen	Part	20	10	2	0	1	500	
Clayton 9 613—St. Louis Co	Gen	County	170	80	48	0	26	2,835	
St. Louis County Hosp	Gen	County	170	80	48	0	26	2,835	
Columbia 14 967—Boone Co	Gen	County	47	19	4	0	12	671	
Boone County Gen Hosp	Gen	County	47	19	4	0	12	671	
State Hospital for Crippled Children	(Included in University Hospitals)								
University Hospitals	Gen	State	100	57	12	18	20	2,068	
Excelsior Springs 4 560—Clay Co	Gen	Part	50	18	0	1	700		
Excelsior Springs Sanitarium and Hospital	Gen	Part	50	18	0	1	700		
Veterans Admin Hospital	Gen	Vet Ad	232	275	0	31	3,262		
Farmington 3 001—St. Francois Co	Gen	State	1164	1175	0	4	402		
Missouri State Hosp No 4	Gen	State	1164	1175	0	4	402		
Payette 6 030—Howard Co	Gen	Part	20	6	5	0	2	330	
Payette Hospital	Gen	Part	20	6	5	0	2	330	
Union 6 100—Callaway Co	Gen	State	1700	1600	0	300			
State Hospital No 10	Gen	State	1700	1600	0	300			
Kendale (Kirkwood P O) 14 111—St. Louis Co	Gen	Indep	18	10	0	0			
Oakland Park Hospital	Gen	Indep	18	10	0	0			
Hansbail 22 001—Marion Co	Gen	City	78	31	17	20	1,449		
Levering Hospital	Gen	City	78	31	17	20	1,449		
St. Elizabeth's Hospital	Gen	Church	60	44	10	0	10	1,240	
Harrisonville 2 200—Cass Co	Gen	Indiv	10	2	2	0	1	130	
Harrisonville Hospital	Gen	Indiv	10	2	2	0	1	130	
Independence 1 200—Jackson Co	Gen	Church	60	57	12	30	12	1,720	
Independence Sanitarium and Hospital	Gen	Church	60	57	12	30	12	1,720	
Ironton 9 4—Iron Co	Gen	Indep	40	12	6	0	6	200	
Aradia Valley Hospital	Gen	Indep	40	12	6	0	6	200	
Jefferson Barracks 842—St. Louis Co	Gen	Army	115	20	3	0	7	70	
Station Hospital	Gen	Army	115	20	3	0	7	70	
Veterans Admin Hospital	Gen	Vet Ad	372	400	0	20	1,307		

MISSOURI—Continued

MISSOURI—Continued									
Hospitals and Sanatoriums	Type of Service	Control	Beds Rated	Capacity	Average Patients	Basinets	Student Nurses	R.N.s. for Nursing	Patients Admitted
Jefferson City 21,506—Cole Co									
St Mary's Hospital	Gen	Church	50	41	10	0	12	1,355	
Joplin 33 454—Jasper Co									
Freeman Community Hosp	Gen	Indep	90	41	12	0	0	1 635	
St John's Hospital	Gen	Church	100	54	10	32	7	1 387	
Kansas City, 389 746—Jackson Co									
Children's Mercy Hosp	Chil	Indep	136	140	12	49	11	2,518	
Fairmount Ventrality Hosp	Mater	Indlv	50	20	50	2	2		
Kansas City Gen Hosp	Gen	City	400	300	25	75	46	8,309	
Kansas City General Hospital No 2 (col)									
Kansas City Industrial Hospital	Gen	City	270	184	24	74	12	2,853	
Kansas City Tuber Sanat	Gen	Indep	12	4	4	0	3	98	
Menorah Hospital	TB	City	161	157	0	14	214		
Research Hospital	Gen	Indep	111	76	23	0	37	2,051	
Robinson Neuropsychiatric Clinic	Gen	Indep	205	141	20	96	0	4,367	
St Joseph's Hospital	N&M	Indlv	48	27	0	0	0	238	
St Luke's Hospital	Gen	Church	230	150	26	90	14	4,487	
St Mary's Hospital	Gen	Church	208	164	32	53	6	4,011	
St Vincent's Mater Hosp	Gen	Church	165	116	16	69	17	3,229	
Simpson Major Sanitarium	Mater	Church	40	21	40	12	2	632	
Trinity Lutheran Hosp	N&M	Part	30	15	0	0	0	167	
Veterans Admin Hospital	Gen	Church	120	79	24	44	0	2,006	
Vineyard Park Hospital	Gen	VetAd	200	173	0	21	1,288		
Wheatley Provident Hospital (col)	Surg	Indlv	35	23	0	12	897		
Willows Maternity Sanit	Gen	Indep	67	22	18	4	438		
Kirksville 8 293—Adair Co	Mater	Indlv	75	59	75	20	1	286	
Grim Smith Hospital and Clinic	Gen	Indep	40	20	2	14	5	1 584	
Louisiana, 3 549—Pike Co									
Pike County Hospital	Gen	County	40	10	12	0	0	362	
Macon 3 851—Macon Co									
Samaritan Hospital	Gen	Indlv	28	0	6	0	2	179	
Marceline 3 555—Linn Co									
B B Putman Mem Hosp	Gen	Indlv	15	12	3	0	1	463	
Maryville 5,217—Nodaway Co									
St Francis Hospital	Gen	Church	85	20	0	5	11	740	
Mexico 8 290—Audrain Co									
Audrain Hospital	Gen	County	45	22	7	0	10	851	
Moherly 13 772—Randolph Co									
McCormick Hospital	Gen	Indlv	40	16	5	0	1	529	
Wabash Employees Hosp	Indus	Indus	50	22	0	4	632		
Woodland Hospital	Gen	Indep	50	28	5	0	0	734	
Monett 4 099—Barry Co									
Dr William M West's Hosp	Gen	Indlv	18	6	8	0	3	200	
Mt Vernon 1 843—Lawrence Co									
Missouri State Sanatorium	TB	State	360	340	0	8	501		
Nevada 7 448—Vernon Co									
Nevada Medical and Surgical Sanitarium	Gen	Indlv	12	3	3	0	2	133	
State Hospital No 3	Mental	State	1,731	1 682	0	0	476		
Pine Lawn—St Louis Co									
Thermon Hosp and Clinic	Gen	Indlv	35	0	8	0	3	215	
Poplar Bluff 7 551—Butler Co									
Brandon Hospital	Gen	Indlv	45	13	4	0	2	369	
Lucy Lee Hospital	Gen	Indlv	26	18	3	0	0	600	
Poplar Bluff Hospital	Gen	Indep	40	18	4	0	2	600	
Robertson 714—St Louis Co									
Jewish Sanatorium	TB	Indep	108	69	0	0	70		
Rolla 3,670—Phelps Co									
U S Trachoma Hospital	Trach	USPHS	38	32	0	2	331		
St Charles 10 491—St Charles Co									
St Joseph's Hospital	Gen	Church	42	28	8	0	12	1,128	
St Joseph 80 935—Buchanan Co									
Dr Byrd's Sanitarium	N&M	Indlv	30	18	0	0	0	60	
Missouri Methodist Hosp	Gen	Church	200	109	20	70	8	4,163	
St Joseph's Hospital	Gen	Church	174	60	16	10	2	2,128	
Stato Hospital No 2	Mental	State	2,396	2,300	3	0	7	011	
Dr C R Woodson's Sanit	N&M	Indep	40	21	0	0			
St Louis, 821 900—St Louis City									
Alexian Brothers Hosp	Gen	Church	200	142	20	3	1 463		
American Hospital	Gen	Indlv	35	8	12	0	8	361	
Barnard Free Skin and Cancer Hospital	Sk & Ca	Indep	43	36	0	5	636		
Barnes Hospital	Gen	Church	270	223	108	63	6 642		
Bethesda Hospital	Gen	Church	105	54	15	12	5	800	
Central Hospital	Gen	Indep	70	50	14				
Christian Hospital	Gen	Indep	108	67	25	46	1 840		
City Isolation Hospital	Gen	Indep	200	170	0	8	2 105		
City Sanitarium	Mental	City	2 185	3,337	0	4	782		
De Paul Hospital	Gen	Church	200	120	35	100	24	3 929	
Evangelical Daughters Home and Hospital	Gen	Church	100	69	25	51	25	3 336	
Firmen Desloge Hospital	Gen	Church	238	203	108	63	Yes	Yes	
Frisco Employees Hospital	Indus	Indus	100	61	0	4	1 500		
Jewish Hospital	Gen	Indep	257	146	33	124	23	4 607	
Josephine Hospital	Gen	Indep	48	21	7				
Lutheran Hospital	Gen	Church	167	90	27	66	6		
Missouri Baptist Hospital	Gen	Church	400	230	41	140	17	5 541	
Missouri Pacific Hospital	Indus	Indus	200	98	0	14	3,266		
Mt St Rose Sanatorium	TB	Church	130	118	Yes	Yes	Yes	Yes	
Peoples Hospital (col)	Gen	Indep	50	11	6	0	0	329	
Robert Koch Hospital	TB	City	501	457	0	10	27		
St Ann's Lying In Hospital	Mater	Church	40	20	45	7	8	6,523	
St Anthony's Hospital	Gen	Church	260	121	50	20	4	8,622	
St John's Hospital	Gen	Church	336	218	60	100	56	5,358	
St Louis Children's Hosp	Chil	Indep	203	143	0	23	3,377		
St Louis City Hospital	Gen	City	700	516	50	90	78	20,007	
St Louis City Hospital No 2 (col)									
St Louis Mater Ho p	Gen	City	424	44	36	50	36	10 341	
St Luke's Hospital	Mater	Indep	101	62	0	104	1,922		
St Luke's Hospital	Gen	Church	175	110	32	94	7	3 351	

MISSOURI—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated	Capacity	Average Patients	Basinsets	Student Nurses	RNs for Nursing	Patients Admitted
St Mary's Hospital**00	Gen	Church	275	211	211	4	1	1	2,875
St Mary's Infirmary**0	Gen	Church	115	57	57	1	1	1	1,948
St Vincent's Sanitarium	N&M	Church	240	241	241	0	0	0	12
Shrivers Hospital for Crippled Children**0	Ortho	Frnt	120	114	114	0	10	459	
U S Marine Hospital	Gen	USPHS	100	94	94	0	11	40	
Sedalia, 20,806—Pettis Co									
City Hospital No 2 (col)	Gen	City	12	2	2	0	2	68	
John H Bothwell Mem Hosp	Gen	City	120	25	20	0	5	884	
Stkeston, 5,676—Scott Co									
Stkeston Hospital	Gen	Part	10	6	4	0	1	302	
Springfield, 57,527—Greene Co									
Burge Hospital**0	Gen	Church	85	18	10	25	0	711	
St John's Hospital	Gen	Church	100	60	12	40	8	2,094	
Springfield Hospital	Gen	Indiv	90	4	10	15	10	2,100	
Stella, 226—Newton Co									
Cardwell Hospital	Gen	Indiv	20	10	4	0	0	800	
Trenton, 6,092—Grundy Co									
Callers Hospital	Gen	Indiv	20	6	2	0	0		
Wright Hospital	Gen	Indiv	15	4	0	0	1	270	
Washington, 5,918—Irankin Co									
St Trunks Hospital	Gen	Church	36	21	6	0	10	643	
Webb City, 6,876—Jasper Co									
Jasper County Tuber Hosp	OTB	County	103	84	0	1	04		
Webster Groves, 16,487—St Louis Co									
Glenwood Sanatorium	N&M	Indiv	30	21	0	4	41		
West Plains, 1,335—Howell Co									
Christa Hogan Hospital	Gen	Indiv	18	0	2	0	1	225	
Related Institutions									
Diamond 515—Newton Co									
Dr Riley J Cheatham's Hospital	Gen	Indiv	8	2	0	0	54		
Hillinsville, 1,139—Infayette Co									
Confederate Home Hospital	Inst	State	0	0	0	0	57		
Independence, 15,296—Jackson Co									
Yule Sanitarium	N&M	Indiv	23	10	0	2			
Jefferson City, 21,506—Cole Co									
Missouri State Penitentiary Hospital	Inst	State	70	50	0	1	1,290		
Kansas City, 109,746—Jackson Co									
Baptist Hospital	Inst	Indiv	27	10	0	1	82		
Kansas City Boy's Orphan Home	Inst	Church	14	2	0	0			
Trowbridge Training School for Nervous and Backward Children	MenDef	Indiv	25	20	0	0	20		
Liberty, 3,516—Clay Co									
Missouri Odd Fellows Home Hospital	Inst	Inst	85	72	0	1	24		
Marshall, 8,103—Sullivan Co									
Missouri State School	MenDef	State	1,044	1,062	1	43			
Marthasville, 194—Warren Co									
Evangelical Fumms Home for Epileptics and Feeble minded	MenDef	Church	125	86	0	1	14		
Mountain Grove, 2,229—Wright Co									
Ryan Hospital	Gen	Indiv	7	1	1	0	0	27	
Ozark, 885—Christian Co									
Ozark Sanatorium	Gen	Indiv	6	2	0	0	85		
Paris, 1,367—Monroe Co									
McMurry Hospital	Gen	Indiv	8	4	1	0			
Parkville, 636—Platte Co									
Waverly Hospital	Inst	Indiv	21	2	0	0	100		
Pomona, 337—Howell Co									
Pomona Hospital	Gen	Indiv	11	4	1	0	1	99	
Rogersville, 401—Webster Co									
Rogersville Hospital	Gen	Indiv	7	2	3	0	18		
Rolla, 3,670—Phelps Co									
Missouri School of Mines Hospital	Inst	State	11	2	0	1	136		
St Charles, 10,401—St Charles Co									
Evangelical Fumms Home for Epileptics and Feeble minded	MenDef	Church	142	117	0	0	20		
St James, 1,294—Phelps Co									
State Federal Soldiers Home Hospital	Inst	State	48	35	0	0	94		
St Joseph, 80,915—Buchanan Co									
Sunnyslope Hospital	TB,Iso	City	27	5	0	2	177		
St Louis, 821,060—St Louis Co									
City Infirmary	Inst	City	93	90	0	1	969		
Hospital of Masonic Home	Inst	Frnt	138	102	0	5	451		
St Louis Training School	MenDef	City	57	60	0	0	81		
Salvation Army Women's Home and Hospital	Mater	Church	16	5	10	0			
Shelbina, 1,826—Shelby Co									
Furnish Hospital	Gen	Indiv	9	3	0	0			
Springfield, 57,527—Greene Co									
Anderson Home Infirmary	Inst	Indiv	14	4	0	2	1,460		
Warrensburg, 5,146—Johnson Co									
Oak Hill Sanitarium	Gen	Indiv	8	3	1	0			
Warrensburg Clinic	Gen	Part	10	2	1	0	1	37	
Webster Groves, 16,487—St Louis Co									
Miriam Convalescent Home	Conv	Inst	25	15	0	0	334		
West Plains, 1,335—Howell Co									
Cottage Hospital	Gen	Indiv	7	1	3	0	0	57	
Summary for Missouri									
Hospitals and sanatoriums	Number	Beds	Average Patients	Patients Admitted					
Related Institutions	119	22,575	19,531	103,060					
	30	2,624	2,300	0,478					
Totals	149	25,199	21,831	200,458					
Refused registration	30	1,517							

MONTANA

Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated	Capacity	Average Patients	Basinsets	Student Nurses	RNs for Nursing	Patients Admitted
Anaconda, 12,404—Deerlodge Co St Ann's Hospital	Gen	Church	65	25	9	17	6	778	
Billings, 16,350—Yellowstone Co Billings Deaconess Hosp	Gen	Church	51	31	12	28	5	1,170	
St Vincent's Hospital	Gen	Church	120	55	15	40	10	1,460	
Bozeman, 6,855—Gallatin Co Bozeman Deaconess Hosp	Gen	Church	45	30	12	22	3	1,102	
Browning, 1,172—Glacier Co Blackfeet Hospital	Gen	Indian	30	16	7	0	4	565	
Butte, 39,532—Silver Bow Co Murray Hospital	Gen	Indep	120	56	12	10	12	1,532	
St James Hospital	Gen	Church	152	70	13	38	0	2,054	
Choteau, 926—Teton Co Choteau Hospital	Gen	Indiv	15	5	3	0	2	214	
Conrad, 1,499—Pondera Co St Mary's Hospital	Gen	Church	34	14	10	0	7	632	
Crow Agency, 113—Big Horn Co Crow Indian Hospital	Gen	Indian	24	12	6	0	4	416	
Deer Lodge, 3,510—Powell Co Montana State Tuberculosis Sanitarium	TB	State	170	138	0	0	7	1,10	
St Joseph's Hospital	Gen	Church	35	16	0	0	4	341	
Dillon, 2,422—Beauregard Co Barrett Hospital	Gen	Indep	22	7	4	0	4	373	
Forsyth, 1,591—Rosebud Co Rosebud Memorial Hospital	Gen	County	25	14	6	0	3	170	
Ft Benton, 1,109—Chouteau Co St Clare Hospital	Gen	Church	40	19	6	0	2	634	
Ft Harrison, Lewis and Clark Co Veterans Admin Hospital	Gen	VetAd	306	228	0	23	1,385		
Ft Missoula (Missoula P O),—Missoula Co Station Hospital	Gen	Army	36	0	0	0	0	247	
Glasgow, 2,216—Valley Co Frances Mahon Deaconess Hospital	Gen	Church	25	14	6	0	4	441	
Glendive, 4,029—Dawson Co Glendive General Hospital	Gen	Indiv	25	10	5	0	3	168	
Northern Pacific Hospital	Gen	Indus	60	34	8	0	11	1,369	
Great Falls, 28,822—Cascade Co Columbus Hospital	Gen	Church	280	117	50	82	13	3,150	
Montana Deaconess Hosp	Gen	Church	163	99	20	77	9	2,390	
Humilton, 1,839—Ravalli Co Marcus Daly Mem Hosp	Gen	Indep	30	14	0	0	7	300	
Hardin, 1,169—Big Horn Co Lucey Winn Hospital	Gen	Indiv	12	4	5	0			
Harlem 708—Blaine Co Ft Belknap Indian Hospital and Sanitarium	Gen	Indian	50	16	5	0	4	542	
Hayre, 0,372—Hill Co Kennedy Deaconess Hosp	Gen	Church	41	24	12	20	7	1,030	
Sacred Heart Hospital	Gen	Church	75	46	9	35	7	1,386	
Helena, 11,803—Lewis and Clark Co St John's Hospital	Gen	Church	65	33	10	19	7	912	
St Peter's Hospital	Gen	Church	78	32	12	16	2	1,041	
Kallispell 6,034—Flathead Co Kallispell General Hospital	Gen	Church	54	22	6	0	10	737	
Lame Deer, 1,525—Rosebud Co Tongue River Agency Hosp	Gen	Indian	50	15	3	0	4	381	
Lewistown, 5,358—Fergus Co Attla Clinic Hospital	Surg	Indiv	16	1	0	0	48		
St Joseph's Hospital	Gen	Church	75	39	16	18	10	1,239	
Libby, 1,752—Lincoln Co Libby General Hospital	Gen	Indiv	16	8	2	0	3	250	
Livingston, 6,391—Park Co Park Hospital	Gen	Indiv	25	14	6	0	4	360	
Miles City, 7,175—Custer Co Miles City Hospital	Gen	Church	85	41	7	10	8	1,136	
Missoula, 14,057—Missoula Co Northern Pacific Hospital	Indus	Indus	75	41	0	0	9	1,360	
St Patrick's Hospital	Gen	Church	108	50	12	35	8	1,362	
Thornton Hospital	Gen	Part	17	26	8	0	10	1,114	
Plentywood, 1,226—Sheridan Co Sheridan Memorial Hospital	Gen	Indep	25	0	5	0	4	358	
Poplar, 1,046—Roosevelt Co Ft Peck Indian School Hospital	Gen	Indian	30	17	6	0	3	820	
Red Lodge, 3,026—Carbon Co Mt Maurice Hospital and Sanitarium	Gen	Indus	26	4	4	2	2	408	
Roundup, 2,577—Musselshell Co Musselshell Valley Hospital	Gen	Indiv	25	7	4	0	2	145	
St Ignatius, 375—Iake Co Holy Family Hospital	Gen	Church	42	10	6	0	3	708	
Sidney, 2,010—Richland Co Sidney Deaconess Hospital	Gen	Church	24	15	6	0	4	590	
Warm Springs, 119—Deerlodge Co Montana State Hospital	Mental	State	1,350	1,563	0				
Related Institutions									
Beauregard, 472—Carbon Co Olemlk Hospital	Gen	Indiv	6	5	0				
Boulder, 926—Jefferson Co Montana State Training School for Feebleminded	MenDef	State	10	370	0			69	
Butte, 39,532—Silver Bow Co Silver Bow County Hosp	Inst	County	150	130	6	0	1	380	
Deer Lodge, 3,510—Powell Co Montana State Penitentiary Hospital	Inst	State	10	3	0				
Great Falls, 28,822—Cascade Co Detention Hospital	Iso	Cy&Co	35	7	0	1		52	
Harlem, 708—Blaine Co Harlem Hospital	Gen	Part	11	5	0	1		80	

MONTANA—Continued

Related Institutions	Type of Service	Control	Beds Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Helena 11,803—Lewis and Clark Co	Maternity	Indep	6	6	6	0	0	2	1,080
Florence Crittenton Home	Inst	County	35	30	0	0	0	0	0
Lewis and Clark Co Hosp	Inst	County	10	6	4	0	1	203	0
Lewistown 5,308—Fergus Co	Inst	County	10	6	4	0	1	203	0
Fergus County Hospital	Inst	County	10	6	4	0	1	203	0
Livingston 6,991—Park Co	Gen	Indiv	7	3	5	0	0	0	99
Robinson Hospital	Gen	Indiv	7	3	5	0	0	0	99
Malta 1,342—Phillips Co	Gen	Indiv	8	4	3	0	1	217	0
Malta Hospital	Gen	Indiv	8	4	3	0	1	217	0
Mammoth—Madison Co	Gen	Indiv	45	7	0	0	4	140	0
Mammoth Hospital	Gen	Indiv	45	7	0	0	4	140	0
Phillipsburg 1,300—Granite Co	Gen	County	8	6	0	0	0	0	0
Granite County Hospital	Gen	County	8	6	0	0	0	0	0
Polson, 1,455—Lake Co	Gen	Church	10	2	3	0	0	0	0
Hotel Dieu Hospital	Gen	Church	10	2	3	0	0	0	0
Stevensville 692—Ravalli Co	Gen	Indiv	7	2	0	0	0	0	0
Stevensville Hospital	Gen	Indiv	7	2	0	0	0	0	0
Twin Bridges 671—Madison Co	Inst	State	25	3	0	0	1	115	0
State Orphans Home Hosp	Inst	State	25	3	0	0	1	115	0
White Sulphur Springs 575—Meagher Co	Gen	Indiv	10	4	0	0	1	100	0
McKay Hospital	Gen	Indiv	10	4	0	0	1	100	0
Summary for Montana									
Hospitals and sanatoriums	Number	Beds	Average Patients	Patients Admitted					
Related institutions	46	4,414	3,077	37,276					
	17	736	591	2,763					
Totals	63	5,150	3,668	40,039					
Refused registration	5	72							

NEBRASKA

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Alamogordo 1,378—Brown Co	Gen	Indiv	25	10	3	0	0	0	0
Alamogordo Hospital	Gen	Indiv	25	10	3	0	0	0	0
Allamore 6,060—Box Butte Co	Gen	Church	100	50	10	30	1	1,091	0
St Joseph's Hospital	Gen	Church	100	50	10	30	1	1,091	0
Arnold, 890—Custer Co	Gen	Indiv	18	3	2	0	0	174	0
Arnold Hospital	Gen	Indiv	18	3	2	0	0	174	0
Auburn 3,062—Nemaha Co	Gen	Indiv	10	3	1	0	1	145	0
Auburn Hospital	Gen	Indiv	10	3	1	0	1	145	0
Aurora 2,715—Hamilton Co	Gen	Part	10	6	0	0	0	200	0
Aurora Hospital	Gen	Part	10	6	0	0	0	200	0
Beatrice 10,257—Gage Co	Gen	Indiv	25	11	4	0	6	230	0
Beatrice Sanitarium	Gen	Indiv	25	11	4	0	6	230	0
Lutheran Hospital	Gen	Church	65	18	11	0	0	632	0
Bisler 2,791—Washington Co	Gen	Indiv	15	2	5	0	2	73	0
Bisler Hospital	Gen	Indiv	15	2	5	0	2	73	0
Broken Bow 2,715—Custer Co	Gen	Indiv	35	6	4	0	1	0	0
Broken Bow Hospital	Gen	Indiv	35	6	4	0	1	0	0
Cambridge, 1,202—Furnas Co	Gen	Indiv	25	4	2	0	1	171	0
Republican Valley Hospital	Gen	Indiv	25	4	2	0	1	171	0
Central City 2,474—Merrick Co	Gen	Indiv	10	4	0	0	0	0	0
J E Benton Hospital	Gen	Indiv	10	4	0	0	0	0	0
Chadron 4,606—Dawes Co	Gen	City	20	0	6	0	3	310	0
Chadron Municipal Hospital	Gen	City	20	0	6	0	3	310	0
Columbus 6,808—Platte Co	Gen	Indep	35	30	4	0	4	154	0
Columbus Hospital	Gen	Indep	35	30	4	0	4	154	0
St Mary's Hospital	Gen	Church	125	62	10	0	12	060	0
David City 2,333—Butler Co	Gen	Indep	13	6	3	0	3	270	0
David City Hospital	Gen	Indep	13	6	3	0	3	270	0
Fairbury, 6,192—Jefferson Co	Gen	Indiv	20	6	2	0	1	1,000	0
Taylor Hospital	Gen	Indiv	20	6	2	0	1	1,000	0
Falls City 5,787—Richardson Co	Gen	Indiv	30	9	10	0	4	369	0
Falls City Hospital	Gen	Indiv	30	9	10	0	4	369	0
Farmington 394—Dawson Co	Gen	Indiv	12	3	2	0	1	0	0
Reeves Memorial Hospital	Gen	Indiv	12	3	2	0	1	0	0
Ft Crook 719—Sarpy Co	Gen	Army	30	11	0	0	0	457	0
Station Hospital	Gen	Army	30	11	0	0	0	457	0
Ft Robinson 613—Dawes Co	Gen	Army	10	2	0	0	0	281	0
Station Hospital	Gen	Army	10	2	0	0	0	281	0
Fremont 11,407—Dodge Co	Gen	Indiv	22	10	6	0	3	520	0
Military Avenue Hospital	Gen	Indiv	22	10	6	0	3	520	0
Richmond Hospital	Gen	Indiv	14	9	3	0	4	344	0
Genoa 1,083—Nance Co	Gen	Indiv	12	4	2	0	1	122	0
Genoa Hospital	Gen	Indiv	12	4	2	0	1	122	0
Grand Island 18,041—Hall Co	Gen	Church	110	40	10	58	7	1,667	0
St Francis Hospital	Gen	Church	110	40	10	58	7	1,667	0
Hartington 1,565—Cedar Co	Gen	Indiv	16	7	0	0	0	0	0
St John's Hospital	Gen	Indiv	16	7	0	0	0	0	0
Hastings 15,400—Adams Co	Gen	Indep	8	51	15	4	10	0	0
Mary Lanning Mem Hosp	Gen	Indep	8	51	15	4	10	0	0
Imperial 940—Chase Co	Gen	Indep	12	5	4	0	2	229	0
Imperial Community Hosp	Gen	Indep	12	5	4	0	2	229	0
Imperial 40—Adams Co	Gen	Indep	12	5	4	0	2	229	0
Hastings State Hospital	Mental	State	1,500	1,491	0	3	311	0	0
Kearney 8,000—Buffalo Co	Gen	Church	60	21	10	0	13	750	0
Good Samaritan Hospital	Gen	Church	60	21	10	0	13	750	0
Lincoln 7,033—Lincoln Co	Gen	State	166	133	0	2	130	0	0
Lincoln Hospital	Gen	State	166	133	0	2	130	0	0
Bryan Memorial Hospital	Gen	Church	100	51	14	39	0	1,370	0
Green Gables Dr Benj F	Gen	Indep	115	79	4	0	13	765	0
Bailey Sanatorium	Gen	Indep	115	79	4	0	13	765	0
Lincoln General Hospital	Gen	Indep	120	99	20	32	12	2,675	0
Lincoln State Hospital	Mental	State	1,300	1,184	0	1	221	0	0
Nebraska Orthopedic Hosp	Ortho	State	120	0	0	5	325	0	0
St Elizabeth's Hospital	Gen	Church	175	163	25	60	12	3,000	0
Veterans Admin Hospital	Gen	Adm	197	141	0	23	1,335	0	0
Lincoln 4—Boyd Co	Gen	Church	25	5	3	0	0	100	0
Sacred Heart Hospital	Gen	Church	25	5	3	0	0	100	0

NEBRASKA—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
McCook 6 638—Redwillow Co									
St Catherine of Sienna Hos- pital	Gen	Church	60	19	10	0	10		663
Minden 1 716—Kearney Co	Gen	Indiv	20	7	6	0	4		477
Seeley Hospital									
Nebraska City 7,230—Otoe Co	Gen	Church	35	18	10	0	10	1	1 008
St Mary's Hospital									
Norfolk 10 717—Madison Co	Mental	State	940	934		0	10		117
Norfolk State Hospital	Gen	Indiv	30	10	2	0			
Verges Sanitarium									
North Platte, 12 031—Lincoln Co	Gen	Indiv	22	8	4	0	1		336
Redfield Dent Hospital	Gen	Indiv	10	8	2	0	1		200
Wartele Hospital									
Oakland 1 433—Burt Co	Gen	Indiv	12	4	3	0	1		162
Oakland Community Hosp									
Omaha 214 006—Douglas Co	Gen	Church	100	72	8	50	13		1,066
Bishop Clarkson Memorial Hospital	Gen	Church	400	230	33	123	25	6	434
Creighton Memorial, St Joseph's Hospital	Gen	County	339	197	0	0	24	1	807
Douglas County Hospital	Gen	Church	113	61	12	45	0		2,770
Evangelical Covenant Hos- pital	Gen	Church	125	94	14	63	10		3,538
Immanuel Deaconess Insti- tute	Gen	Indiv	150	82	20	42	15		2,092
Lord Lister Hospital	Gen	Church	100	40	22	0	25	1	242
Lutheran Psychiatric Hosp (Included in Lutheran Hospital)	Gen	Church	175	123	25	85			4 205
Lutheran Hospital	Gen	Church	152	114	25	73	6		3 000
Nebraska Methodist Episco- pal Hospital	Gen	Indiv	15	5		0			
St Catherine's Hospital	Gen	Army	22	5		0	0		328
South Side General Hospital	Gen	State	215	178	20	02	34	3	472
Station Hospital	Gen	Indiv	15	7	2	0			298
University of Nebraska Hos- pital	Gen	Indep	14	6	5	0			251
Ord 2 226—Valley Co	Gen	Indiv	26	12	4	0	2		526
Ord Hospital	Gen	Indiv	15	6	3	0	2		200
Oxford 1 155—Furnas Co	Gen	Church	60	31	10	26	7	1	265
Oxford General Hospital	Gen	Part	20	6	5	0	2		209
Pawnee City 1 573—Pawnee Co	Gen	Indiv	15	4	6	0	1		147
Pawnee Hospital	Gen	Indiv	20	9	5	0	2		352
Schuyler 2 583—Colfax Co	Gen	Part	15	4	3	0	0		421
Kolouch Hospital	Gen	Indiv	14	5		2	0		
Scottsbluff 8 405—Scotts Bluff Co	Gen	Indiv	20	0	3	0	2		317
West Nebraska Methodist Episcopal Hospital	Gen	Indiv	12	2	2	0			115
Seward 2 737—Seward Co	Gen	Indiv	12	2	3	0	1		136
Morrow Hospital	Gen	Indiv	10	3	2	0	2		128
Seward Hospital	Gen	Indiv	10	6	3	0	2		240
Sidney 3 306—Cheyenne Co	Gen	Part	12	2	4	0	1		85
Taylor Hospital	Gen	Indian	53	32	2	0	3		670
Spencer 603—Boyd Co	Gen	Church	50	21	6	17	2		839
Spencer Hospital	Gen	Part	12	3	6	0	4		135
Stratton 603—Hitchcock Co	Gen								
Dr Stewart's Private Hosp	Gen								
Stuart 763—Holt Co	Gen								
Wilson Hospital	Gen								
Sutton 1 540—Clay Co	Gen								
Sutton Hospital	Gen								
Tekamah, 1 804—Burt Co	Gen								
Tekamah General Hospital	Gen								
Tilden 1 106—Madison Co	Gen								
Tilden Hospital	Gen								
Valentine 1 672—Cherry Co	Gen								
Cherry County Hospital	Gen								
Walsh 1 102—Thurston Co	Gen								
Dr Picotte Memorial Hosp	Gen								
Winnebago 603—Thurston Co	Gen								
Winnebago Indian Hosp	Gen								
York 5 712—York Co	Gen								
Lutheran Hospital	Gen								
York Clinic and Clinic Hosp	Gen								
Related Institutions									
Atkinson 1 144—Holt Co	Gen	Indiv	10	3	2	0	3		74
Atkinson General Hospital									
Axtell 328—Kearney Co	MenDef	Indep	168	155		0			12
Bethphage Inner Mission									
Beatrice 10 297—Gage Co	MenDef	State	1 234	1 102		0	0		1 62
Nebraska Institution for Feeble-minded									
Beemer 571—Cuming Co	Gen	Indiv	10	1	2	0			32
Pierson Hospital	Gen	Indiv	8	5	3	0	2		340
Dalton 450—Cheyenne Co	Gen	Part	6	2	3	0	1		70
Pioneer Memorial Hospital	Gen	Indian	30	4		0	1		205
Genoa 1 609—Nance Co	Gen								
Emergency Hospital	Gen								
Genoa Indian School Hosp	Gen								
Grand Island 18 041—Hall Co	Inst	State	120	90		0	1		
Nebraska Soldiers and Sail- ors Home—Pershing, Hosp	Inst	State	20	2		0	0		150
Kearney 5 500—Buffalo Co	Gen	Part	10	4	4	0			60
State Industrial School for Boys	Gen	Part	10	3	3	0			
Kimball 1 711—Kimball Co	Inst	City	20						0
Mockett and Everett Hosp	Inst	State	22	11		0	0		200
Lexington 2 502—Dawson Co	Gen								
City General Hospital	Gen								
Lincoln 75 923—Lancaster Co	Gen								
Isolation Hospital	Inst								
Nebraska State Penitentiary Hospital	Inst	State	22	11		0	0		200

NEBRASKA—Continued

Related Institutions	Type of Service	Control	Beds, Rated Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Millford, 532—Seward Co	Inst	State	20	5	12	0	2	57
Nebraska Industrial Home	Inst	State	60	1	0	1	1	100
Odell, 472—Gage Co	Gen	Indiv	0	5	3	0		15
Odell General Hospital	Gen	Indiv	8	1	6	0	0	2
Omaha, 214,000—Douglas Co	Gen	Indiv	70	1	16	0	1	110
Frederick Hospital	Gen	Indiv	21	10	0			
Salvation Army Women's Home and Hospital	Mater	Church	7	2	0	1	1	19
Woman's Detention Hospital	Vener	City	10	2	2	0	1	41
Orchard, 507—Antelope Co	Gen	Indiv	8	5	4	0	2	176
Orchard Hospital	Gen	Indiv	45	1	0			
Palmer, 558—Merrick Co	Gen	Indiv	10	2	1	0	1	14
Cooldge Hosp and Sanat	Gen	Indiv	10	1	2	0	0	
Plainsview, 1,216—Pierce Co	Gen	Indiv	2	11	6	0	3	74
Plainsview General Hospital	Gen	Indiv	6	2	2	0		
Plattsmouth, 1,700—Cass Co	Inst	Inst	15	5	1	0	4	210
Nebraska Masonic Home	Gen	Indiv						
Sutherland, 753—Lincoln Co	Gen	Indiv						
Russell Hospital	Gen	Indiv						
Table Rock, 671—Pawnee Co	Gen	Indiv						
McCrea Private Hospital	Gen	Indiv						
Wahoo, 2,689—Saunders Co	Gen	Indiv						
Community Hospital	Gen	Indiv						
Wayne, 2,381—Wayne Co	Gen	Indiv						
Bentback Hospital	Gen	Indiv						
Westpoint, 2,225—Cuming Co	Inst	Church						
St Joseph Home for Aged and Hospital								
Summary for Nebraska								
Hospitals and sanatoriums	77	8,257	6,247	64,456				
Related Institutions	28	1,982	1,576	4,227				
Totals	105	10,239	7,823	68,683				
Refused registration	25	3,322						

NEVADA

Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Austin, 1,000—Lander Co	Gen	County	10	6	1	0		23
Boulder City, 5,000—Clark Co	Gen	Indus	60	25	2	0	7	1,773
SLC Companies, Inc Hosp	Gen	Indus	45	21	7	0	6	412
Fast Ely, 1,507—White Pine Co	Gen	Indus	45	17	4	0	6	45
Steploe Valley Hospital	Gen	County	45	10	4	0	2	306
Elko, 3,217—Elko Co	Gen	County	14	10	1	0		100
Elko General Hospital	Gen	County	40	20	6	0	4	
Ely, 3,045—White Pine Co	Gen	County	43	10	4	0	2	306
White Pine County and Gen	Gen	County	14	10	1	0		100
Central Hospital	Gen	County	40	20	6	0	4	
Hawthorne, 928—Mineral Co	Gen	County	25	286	0	2	56	
Mineral County Hospital	Gen	County	100	125	35	0	7	978
Las Vegas, 5,165—Clark Co	Gen	Indep	28	23	0			
Las Vegas Hospital	Gen	Indep	28	23	0			
Nixon, 42—Washoe Co	Gen	Indep	28	23	0			
Pyramid Lake Indian Sanatorium	TB	Indian	55	41	0	3	70	
Reno, 18,529—Washoe Co	Gen	County	25	286	0	2	56	
Nevada State Hospital for Mental Diseases	Mental	State	32	7	12	0	14	1,884
St Mary's Hospital	Gen	Church	100	125	35	0	7	978
Washoe General Hospital	Gen	County	28	23	0			
Stewart, 412—Ormsby Co	Gen	Indian	28	23	0			
Carson Indian Hospital	Gen	Indian	28	23	0			
Tonopah, 4,144—Nye Co	Gen	County	30	12	1	0	2	
Nye County Hospital	Gen	County	29	7	0	0	102	
Tonopah Mines Hospital	Gen	Indus						
Winnemucca, 1,080—Humboldt Co	Gen	County	33	18	3	0		
Humboldt County General Hospital	Gen	County						
Related Institutions								
Battle Mountain, 1,120—Lander Co	Gen	County	8	2	2	0		
Battle Mountain Gen Hosp	Gen	County	9	4	0		6	
Eureka, 652—Eureka Co	Gen	County	8	0	0	0	0	
Eureka County Hospital	Indus	Indiv	20	7	3	0	3	64
Pioche, 615—Lincoln Co	Gen	Indiv	39	10	0	1	473	
Pioche Hospital	Gen	Indiv	12	9	0			
Selma, Mineral Co	Inst	Indian	16	12	0	0	62	
Walker River Indian Hosp	Gen	Indiv						
Stewart, 412—Ormsby Co	Inst	County						
Carson Indian School Hosp	Inst	County						
Virginia City, 1,200—Storey Co	Inst	County						
Storey County Hospital	Gen	County						
Yerington, 1,005—Lyon Co	Gen	County						
Lyon County Hospital								
Summary for Nevada								
Hospitals and sanatoriums	16	921	675	6,470				
Related Institutions	7	112	53	623				
Totals	23	1,033	728	7,093				
Refused registration	1	20						

NEW HAMPSHIRE

Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Berlin, 20,018—Coos Co	Gen	Church	75	40	10	23	2	1,286
St Louis Hospital	Gen	Indep	59	30	11	23	4	716
Claremont, 12,377—Sullivan Co	Gen	Indep	93	50	17	30	5	1,711
Claremont General Hosp	Gen	Indep	46	34	20	36	6	600
Concord, 25,228—Merrimack Co	Gen	Indep	1,830	1,770	40	31	408	
Margaret Pillsbury General Hospital	Gen	Indep	25	17	7	0	5	632
New Hampshire Men's Hosp	Gen	Indep	69	35	15	22	0	921
for Women and Children	Gen	Indep	40	23	12	24	4	644
New Hampshire State Hosp	Gen	Indep	42	15	9	8	4	304
Dover, 19,573—Strafford Co	Gen	Indep	110	03	0	4	02	
Hyles Hospital	Gen	Indep	128	101	0	32	5	1,223
Wentworth Hospital	Gen	Indep	76	14	47	10	2	485
Wentworth Hospital	Gen	Indep	70	54	14	94	7	1,386
Wentworth Hospital	Gen	Indep	62	45	12	27	5	1,507
Wentworth Hospital	Gen	Indep	15	7	5	0	4	337
Wentworth Hospital	Gen	Indep	54	16	8	10	4	530
Wentworth Hospital	Gen	Indep	30	10	7	4	233	
Wentworth Hospital	Gen	Indep	75	59	13	32	6	2,337
Wentworth Hospital	Gen	Indep	85	60	15	38	2	1,896
Wentworth Hospital	Gen	Indep	25	20	0	20	3	443
Wentworth Hospital	Gen	Indep	22	0	14	0	6	236
Wentworth Hospital	Gen	Indep	60	51	0	28	8	1,330
Wentworth Hospital	Gen	Indep	77	54	10	52	0	1,578
Wentworth Hospital	Gen	Indep	01	41	17	25	2	1,570
Wentworth Hospital	Gen	Indep	11	4	4	0	3	140
Wentworth Hospital	Gen	Indep	20	8	6	0	5	281
Wentworth Hospital	Gen	Indep	25	13	0	0	8	412
Wentworth Hospital	Gen	Indep	100	91	5	3	189	
Wentworth Hospital	Gen	Indep	21	11	7	0	335	
Wentworth Hospital	Gen	Indep	28	9	3	0	4	324
Wentworth Hospital	Gen	Indep	64	38	10	23	8	1,350
Wentworth Hospital	Gen	Indep	200	14	0	0	1,584	
Wentworth Hospital	Gen	Indep	24	21	8	0		
Wentworth Hospital	Gen	Indep	50	21	12	14	2	1,068
Wentworth Hospital	Gen	Indep	29	15	0	0	0	538
Wentworth Hospital	Gen	Indep	24	17	6	0	3	468
Related Institutions								
Concord, 25,228—Merrimack Co	Inst	Indep	05	5	0	4	706	
Concord, 25,228—Merrimack Co	Gen	County	50	40	2	0	100	
Concord, 25,228—Merrimack Co	Inst	Indep	50	10	0	3	307	
Concord, 25,228—Merrimack Co	Inst	County	27	25	4	0	3	140
Concord, 25,228—Merrimack Co	MenDef	State	550	552	0	1	4	
Concord, 25,228—Merrimack Co	Gen	Indus	10	1	3	0	2	26
Concord, 25,228—Merrimack Co	Iso	City	67	2	0	4		
Concord, 25,228—Merrimack Co	Ineur	Indep	43	41	0	3	9	
Concord, 25,228—Merrimack Co	Inst	State	30	7	0	1	52	
Summary for New Hampshire								
Hospitals and sanatoriums	36	1,907	109	31,814				
Related Institutions	9	892	681	1,394				
Totals	45	4,801	3,790	33,208				
Refused registration	1	25						

NEW JERSEY

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Allenwood 166—Monmouth Co									
Allenwood Sanat and Monmouth County Hospital	TB	County	60	81	0				
Atlantic City 66 195—Atlantic Co									
Atlantic City Hospital	Gen	Indep	310	200	54	121	4	6 674	
Children's Seashore House	Ortho	Indep	370	191	0		2	2 260	
Bayonne, 88 910—Hudson Co									
Bayonne Hospital and Dispensary	Gen	Indep	170	120	70	60	11	7 792	
Swacy Sanitarium	Gen	Indv	22	4	0	0	2	1 197	
Bellemead, 51—Somerset Co									
Bellemead Farm Colony and Sanatorium	N & M	Indv	60	20			0	1 108	
Belleville, 26 914—Essex Co									
Essex County Hospital for Contagious Diseases	Isd	County	430	101	50	75	2 102		
Boundbrook 7,378—Somerset Co									
Boundbrook Hospital	Gen	Indep	30	10	8	0	5	0 67	
Bridgeton, 16 690—Cumberland Co									
Bridgeton Hospital	Gen	Indep	85	47	10	30	8	1 40	
Browns Mills 313—Burlington Co									
Deborah Tuberculosis Sanat	TB	Indep	45	43		0	1	8	
Camden 118 700—Camden Co									
Bellevue Private Hospital	Gen	Part	25	10	12	0			
Cooper Hospital	Gen	Indep	288	217	12	100	17	5 945	
West Jersey Homeopathic Hospital	Gen	Indep	227	141	40	50		4 507	
Cedar Grove 3 000—Essex Co									
Essex County Hospital	Mental	County	2 403	2 200		18	13	470	
Cranbury 1 033—Middlesex Co									
Cranbury Lake Sanitarium	N & M	Indv	20	12		0	1	7	
Dover 10 031—Morris Co									
Dover General Hospital	Gen	Indep	72	42	15	0	8	1 551	
Dumont 2,861—Bergen Co									
Dumont Private Hospital	Gen	Indv	11	4	5	0	4	120	
East Orange, 68 020—Essex Co									
Homeopathic Hospital	Gen	Indep	80	60	24		14	2,808	
Elizabeth 114,520—Union Co									
Alexian Brothers Hosp	Gen	Church	180	144		0	10	1 807	
Elizabeth General Hospital and Dispensary	Gen	Indep	193	147	70	81	25	4 697	
St Elizabeth Hospital	Gen	Church	220	180	40	70	14	3 607	
Farglewood 17,500—Bergen Co									
Englewood Hospital	Gen	Indep	177	144	20	03	20	4 461	
Et Hancock—Monmouth Co									
Et Hancock Hospital	Gen	Army	50	10		0	0	384	
Franklin, 4 170—Sussex Co									
Franklin Hospital	Gen	Indus	30	10	7	0	4	593	
Freehold, 0 84—Monmouth Co									
Freehold Hospital	Gen	Indv	20	7	0	0	3	212	
Glen Gardner 654—Hunterdon Co									
New Jersey Sanatorium	TB	State	404	475		0	21	072	
Greentech 250—Camden Co									
Camden County Hospital for Mental Diseases	Mental	County	400	4 8		0	4	140	
Lakeland Sanatorium	TB	County	240	214		0	22	400	
Greystone Park—Morris Co									
New Jersey State Hospital	Mental	State	4,341	3,000	2	70	63	1 405	
Hackensack 24 568—Bergen Co									
Hackensack Hospital	Gen	Indep	220	173	70	87	22	6 013	
Hoboken 60 201—Hudson Co									
St Mary Hospital	Gen	Church	430	207	30	63		5 180	
Irrington 56 733—Essex Co									
Irrington General Hospital	Gen	City	70	60	17	0	20	2 148	
Jersey City 316 715—Hudson Co									
Christ Hospital	Gen	Church	180	110	21	72		2 727	
Fairmount Surgical Sanat	Gen	Indv	65	40	21	23	4	1,236	
Crenville Hospital	Gen	Indep	60	40	16	28	6	1 400	
Illukop Sanitarium	Gen	Part	22	9	12	0	5	900	
Jersey City Hospital	Gen	City	900	602	40	200	80	10 110	
Margaret Hugue Maternity Hospital	Mater	County	275	173	275	14	60	4 693	
St Francis Hospital	Gen	Church	220	100	10	70	10	4 308	
Keany (Arlington P O)—Hudson Co									
West Hudson Hospital	Gen	Indep	02	30	14	0	10	1 276	
Lakewood 8 000—Ocean Co									
Paul Kibbitt Hospital	Gen	Indep	65	76	10	0	12	1 408	
Long Branch 15,300—Monmouth Co									
Dr F O Hazard Hospital	Gen	Indep	90	69	30	20	6	2,783	
Monmouth Mem Hosp	Gen	Indep	186	119	30	63	15	0 61	
Lyons—Somerset Co									
Veterans Admin Hospital	Mental	Yet Ad	800	601		0	70	800	
Warrior 410—Monmouth Co									
New Jersey State Hospital	Mental	State	1 100	804		0		61	
Midland Park 3 638—Bergen Co									
Christian Sanatorium	N & M	Indep	140	90		20	2	1 160	
Millville 14 700—Cumberland Co									
Millville Hospital	Gen	Indep	40	20		0	0	1 170	
Montclair 42,017—Essex Co									
Montclair Community Hospital	Gen	Indep	61	25	24	0	12	577	
Mountainside Hospital	Gen	Indep	289	167	01	00	4	0 02	
St Vincent's Hospital	Gen	Church	46	11	11	0	11	1 190	
Morrisstown 15 100—Morris Co									
All towns Hospital	Gen	Church	119	77	20	40		1 720	
Morris Town Mem Hosp	Gen	Indep	140	100	20	30	20	2 700	
Thyiatric Institute	Metab	Indep	70	30		0		1 0	
Shonham Sanitarium	TB	County	02	02		0	2	49	
St Holly 5 700—Burlington Co									
Burlington County Hosp	Gen	County	110	02	19	34	20	2 600	
Newton 220—Monmouth Co									
Fifth Memorial Hosp	Gen	Indep	120	80	32	40	10	2 047	
Newark 41,007—Essex Co									
St Paul Hospital	Chil	Indep	60	70		17	5	0 0	
Ho pital and Home for crippled Children	Ortho	TB Indp	120	00		1	6	4 0	

NEW JERSEY—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Hospital for Women and Children	Gen	Church	04	01	30	47	10	2	151
Hosp of St Barnabas	Gen	Church	120	105	18	61	22	2	499
Kennedy Memorial Hospital (col)	Gen	Indiv	20	7	4	0	4		230
Lincoln Hospital	Gen	Indep	45	15	12	0	5		821
Newark Beth Israel Hospital	Gen	Indep	318	291	06	56	58	8	490
Newark City Hospital	Gen	City	600	550	100	00	43	16	480
Newark Eye and Ear Infirmary	EENT	Indep	64	47		0	8		2 030
Newark Memorial Hospital	Gen	Indep	127	73	30	48	12		1 800
Presbyterian Hospital	Gen	Church	212	158	53	146	21		4 732
St James Hospital	Gen	Church	107	79	18	54	0		1,820
St Michael's Hospital	Gen	Church	300	181		58	18		4,421
Dr Wright's Sanitarium and Maternity Home (col)	Gen	Indiv	18	5	5	0	2		146
New Brunswick 34 555—Middlesex Co									
Middlesex General Hospital	Gen	Indep	90	57	20	30	8		1,931
St Peter's General Hospital	Gen	Church	154	100	33	63	11		3,840
New Lisbon 131—Burlington Co									
Fairview Sanatorium	TB	County	120	124		0	12		125
Newton 5,401—Sussex Co									
Newton Memorial Hospital	Gen	Indep	41	New	7	0	7		
Northfield 2 804—Atlantic Co									
Atlantic County Hospital for Mental Diseases	Mental	County	400	206		0	2		130
Atlantic County Hospital for Tuberculous Diseases	TB	County	50	40		0	5		00
Oceanport 1 872—Monmouth Co									
Station Hospital	Gen	Army	35	24		0	0		524
Orange 35 300—Essex Co									
New Jersey Ortho Hospital and Dispensary	Ortho	Indep	30	31		0	3		304
Orange Memorial Hospital	Gen	Indep	313	223	75	74	65		6 101
St Mary's Hospital	Gen	Church	125	89	25	51	15		1,885
Passaic 02 00—Passaic Co									
Beth Israel Hospital	Gen	Indep	80	40	16	0	0		865
Passaic General Hospital	Gen	Indep	200	128	25	45	8		3 424
St Mary's Hospital	Gen	Church	180	110	30	63			2,813
Paterson 193 613—Passaic Co									
Nathan and Miriam Barnett Memorial Hospital	Gen	Indep	102	86	12	45			2 173
Paterson General Hospital	Gen	Indep	271	195	40	85	19		5,822
Riverlawn Sanatorium	N & M	Indep	60	47		0			
St Joseph's Hospital	Gen	Church	305	229	45	110	18		0,713
Valley View Sanatorium	TB	County	221	210		0	12		219
Perth Amboy, 43 510—Middlesex Co									
Perth Amboy General Hospital	Gen	Indep	130	101	18	42	12		3 185
Phillipsburg 19 255—Warren Co									
Warren Hospital	Gen	Indep	63	31	10				
Plainfield 34 422—Union Co									
Muhlenberg Hospital	Gen	Indep	240	183	35	82	30		4 675
Point Pleasant 2 008—Ocean Co									
Point Pleasant Hospital	Gen	Indep	22	12	4	0	1		300
Princeton 6 992—Mercer Co									
Princeton Hospital	Gen	Indep	57	33	12	0	14		1 142
Railway 16 011—Union Co									
Railway Memorial Hospital	Gen	Indep	100	40	20	0	12		1 687
Red Bank 11 022—Monmouth Co									
Riverview Hospital	Gen	Indep	29	19	10	0	5		709
Ridgewood 12 188—Bergen Co									
Bergen Pines Berken County Hospital	TB Iso	County	400	180		0	30		778
Riverside 4 010—Burlington Co									
Zurbrugg Memorial Hospital	Gen	Indep	12	4	0	0	3		155
Salem 0 047—Salem Co									
Salem County Mem Hospital	Gen	Indep	30	27	10	0			1 014
Scotch Plains 1 010—Union Co									
Bonnie Burn Sanatorium	TB	County	301	350		0			487
Secaucus 8 900—Hudson Co									
Hudson County Hospital	Gen	County	220	220	22	0	20		756
Hudson County Hospital for Insane	Mental	County	1 300	1 217		0	1		318
Hudson County Tuberculosis Hospital and Sanat	TB	County	207	205		0	22		260
Skidman 21—Somerset Co									
New Jersey State Village for Epileptics	Fppl	State	1 040	1 218		0	4		244
Somers Point 2,071—Atlantic Co									
Atlantic Shores Hospital	Gen	Indep	72	37	12	0	0		1 238
Somerville 8 200—Somerset Co									
Somerset Hospital	Gen	Indep	74	55	12	20	12		3 230
South Amboy 8 476—Middlesex Co									
South Amboy Memorial Hospital	Gen	Indep	35	14	0	0	8		506
Summit 14,000—Union Co									
Fair Oaks Sanatorium	Gen	Indiv	40	31		0	1		135
Overlook Hospital	Gen	Indep	112	53	01	46	17		1 020
Sussex 1 416—Sussex Co									
Alexander Inn Hospital	Gen	City	22	0	5	0	3		294
Traneek 3,200—Bergen Co									
Holy Name Hospital	Gen	Church	179	07	41	61			2,607
Princeton 123 240—Mercer Co									
Chambersburg Gen Hospital	Gen	Indep	27	15	8	0			371
Charles Private Hospital	N & M	Indiv	45	25	0	0	1		492
Mercer Hospital	Gen	Indep	213	137	37	59	24		4 520
New Jersey State Hospital	Mental	State	2 660	2 070		03	26		1,000
Orthopaedic Hospital and Dispensary									
St Francis Hospital	Ortho	Indep	50	22		0	0		20
Trinton Municipal Hospital	Gen	Church	252	174	32	97	8		4 405
William McKelvey Memorial Hospital	Gen	City	414	207		8	10		497
Union City 11 000—Hudson Co	Gen	Indep	116	87	30	46	12		2,315
Hamilton Sanitarium	Gen	Indep	0	10	15	0	7		365
Verona 1 101—Essex Co									
Essex Mountain Sanat	TB	County	417	350		0	50		500

NEW JERSEY—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated	Capacity	Average Patients	Basinsets	Student Nurses	RNs for Nursing	Patients Admitted
Vineland, 7,550—Cumberland Co Newcomb Hospital	Gen	Indep	85	41	15	0	12	122	
Weehawken, Hudson Co North Hudson Hospital	Gen	Indep	140	98	2	0	11	2,740	
Woodbury, 8,172—Gloucester Co Brower Hospital	Gen	Indlv	15	10	5	0	1	408	
Underwood Hospital	Gen	Indep	10	26	20	0	15	148	
Related Institutions									
Atlantic City, 66,108—Atlantic Co Atlantic City, 1st, Nose Throat and Chest Hospital	INDV	Indlv	9	1		0			
Dr Leonard's Private Sanit	Dr & M	Indlv	2	2		0	1	167	
Mantelup Hospital	Iso	City	60	10		0			
Bridgeton, 15,689—Cumberland Co Cumberland County Hospital for Insane	Mental County		212	187		0	1	4	
1st Hall Sanitarium	Conv	Indlv	18	20		0			
1st Manor	Conv	Indlv	2	11		0			
Brown's Mills, 11—Burlington Co Twin Maples Nursing, Cottage	TB	Indlv	22			0	1	2	
Burlington, 10,844—Burlington Co Masonic Home	Inst	Inst	1	10		0	2	10	
Caldwell, 5,144—Essex Co Knoll Rest Convalescent Home	TB	Indlv	20	11		0	5	2	
Theresa Grotta Home for Convalescents	Conv	Indep	41	2		0		83	
Camden, 11,700—Camden Co Municipal Hospital for Contagious Diseases	Iso	City	100	19		0	10	500	
Chatsworth, 902—Burlington Co The Pines Sanitarium	TB	Indlv	10	10		0	4	48	
Farmingdale, 629—Monmouth Co Tuberculosis Preventorium for Children	TB	Indep	249	180		0	0	221	
Grainloch, 255—Camden Co Camden County General Hospital	Inst	County	120	114		0		410	
Haddonfield, 8,877—Camden Co Bancroft School	MenDef	Indep	100	9		0	2	18	
Immerburg, 2,048—Middlesex Co New Jersey State Home for Boys	Inst	State	18	12		0	2	1,104	
Jersey City, 116,715—Hudson Co Jersey Eye, Ear, Nose and Throat Hospital	INDV	Indlv	10	6		0			
Salvation Army Door of Hope Home and Hospital	Mater	Church	9	1	9	0	1	71	
Lakewood, 8,000—Ocean Co Lakewood Sanitarium	N & M	Indlv	1	1		0	0	1	
Longport, 228—Atlantic Co Betty Buchanan Home for Afflicted Children	Ortho	Inst	12	17		0	3	100	
Menlo Park, 755—Middlesex Co New Jersey Home for Disabled Soldiers	Inst	State	100	43		0	2	48	
Morristown, 17,197—Morris Co Aurora Health Farm	Conv	Indlv	90	2		0	2	38	
Newark, 442,737—Essex Co Home for Incurables and Hospital	Inst	Indep	4	5		0	1	100	
Newark City Almshouse	Inst	City	153	112		0	5	141	
New Brunswick, 34,555—Middlesex Co Francis E. Parker Memorial Home	Incur	Indlv	50	28		0	0	8	
Newfoundland, 564—Morris Co Idleseat Sanitarium	TB	Indep	60			0	1		
New Lisbon, 131—Burlington Co Burlington County Hospital for the Insane	Mental County		25	248		0	1	67	
State Colony for Feeble minded Males	MenDef	State	500	677		0		1,018	
Northfield, 2,804—Atlantic Co Atlantic County General Hospital	Inst	County	120	86		2	0	0	67
North Wildwood (Wildwood P O), 2,049—Cape May Co Margaret Mace's Hospital	Gen	Indlv	15	6		0			
Ocean City, 5,525—Cape May Co Ocean City Seashore Home for Babies	Inst	Indep	40	10		0			
Ocean Grove, 3,050—Monmouth Co Methodist Episcopal Home for Aged	Inst	Church	10	10		0			
Passaic, 62,950—Passaic Co Passaic Eye, Ear, Nose and Throat Private Hospital	INDV	Indlv	30	11		0	6	1,440	
Passaic Municipal Hospital	TB Iso	City	25	4	2	0	2	98	
Paterson, 138,513—Passaic Co Paterson City Hospital	TB, Iso	City	110	64		0			
Princeton, 6,992—Mercer Co Isabella McCosh Infirmary	Inst	Indep	55	13		0	8	1,594	
Rahway, 16,011—Union Co New Jersey Reformatory Hospital	Inst	State	16	6		0	2	214	
Roseland, 1,038—Essex Co Mountain View Rest	N & M	Part	22	16		0	4	51	
Sea Isle City, 850—Cape May Co Sea Isle Hospital and Training School	N & M	Indep	75	16	5	0	2	40	
Secaucus, 8,950—Hudson Co Hudson County Smallpox Hospital	Iso	County	50			0			
Summit, 14,550—Union Co Fair View Sanitarium	N & M	Part	20	0		0			

NEW JERSEY—Continued

Related Institutions	Type of Service	Control	Beds Rated	Capacity	Average Patients	Basinsets	Student Nurses	RNs for Nursing	Patients Admitted
Traneek, 3,260—Bergen Co Bright Side Sanitarium	Incur	Indlv	28	19		0			
Tolowa (Paterson P O), 4,600—Passaic Co State Training School	MenDef	State	480	444		0	0	954	
Trenton, 12,156—Mercer Co New Jersey State Prison Hospital	Inst	State	45	25		0	1	789	
State Home for Girls	Inst	State	50	7		0	2	868	
Upper Montclair, Essex Co Montclair Sanitarium	Gen	Part	10	5		0	1	48	
Vineland, 7,550—Cumberland Co Muhlenberg School	MenDef	Indlv	17	15		0	0		
New Jersey Memorial Home for Disabled Soldiers, Sailors, Marines and Their Wives and Widows	Inst	State	70	40		0	2	480	
Training School at Vineland	MenDef	Indep	53	1		0		74	
Vineland State School	MenDef	State	1,252	1,194		4	0	8	92
West Englewood, 2,207—Bergen Co Englewood Sanitarium (Lynwood Lodge)	N & M	Indlv	40	25		0	1	54	
Woodbine, 2,164—Cape May Co Woodbine Colony for Feeble minded Males	MenDef	State	524	51		0	1	93	
Summary for New Jersey									
Hospitals and sanatoriums	Number	Beds	Average Patients	Patients Admitted					
Related institutions	124	1,818	2,676	261,291					
Refused registration	51	6,175	5,194	13,932					
Refused registration	17	191	108	275					

NEW MEXICO

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated	Capacity	Average Patients	Basinsets	Student Nurses	RNs for Nursing	Patients Admitted
Albuquerque, 26,570—Bernalillo Co A T & S F Hospital	Indus	Indus	70	20		0	4	234	
Children's Home and Hosp	Ortho	Indep	25	10	10	0	2	20	
Hillcrest Sanitarium	TB	Indlv	8	60		0	4	108	
Methodist Deaconess Sanit	TB	Church	6	45		0	3	68	
National Lutheran Sanit	TB	Church	75	1		0	3	80	
St Joseph Sanit and Hosp	Gen	Church	196	137	12	6	2	2,237	
Southwestern Presbyterian Sanitarium	TB Gen	Church	13	60	7	0	14	913	
U S Indian School Hospital	Gen	Indian	72	41	4	0	6	1,222	
Veterans Admin Hospital	Gen	Vet Ad	23	New		0	19		
Black Rock (Zuni P O)—McKinley Co Zuni Sanitarium	TB Gen	Indian	80	5		0	2	189	
Carlsbad, 3,708—Fddy Co St Francis Hospital	Gen	Church	1	5	5	0	2	639	
Clayton, 2,518—Union Co St Joseph Hospital	Gen	Church	25	9	5	0	0	791	
Clovis, 8,027—Curry Co A T & S F Hospital	Indus	Indus	92	14		0	1	235	
Baptist Hospital	Gen	Church	0	10	8	0	4	667	
Cronquist 52—McKinley Co Eastern Navajo Agency Hospital	Gen	Indian	2	11	5	0	0	411	
Dawson, 2,662—Colfax Co Phelps Dodge Corporation Hospital	Gen	Indus	50	4	4	0	3	9	
Deming, 1,377—Luna Co Deming Ladies' Hospital	Gen	Indep	24	5	4	0	1	163	
Holy Cross Sanitarium	TB	Church	200	60		0	5	110	
Duke, 101—Rio Arriba Co Scurilla Agency Hospital	Gen	Indian	24	20	5	0	2	182	
Hearilla Southern Mountain Sanitarium	TB	Indian	80	7		0	0	12	
Laramington, 1,750—San Juan Co San Juan Episcopal Hospital	Gen	Church	12	8	1	0	2	100	
Mission Hospital	Gen	Indep	14	6		0	1	710	
San Juan Hospital	Gen	Indep	14	6		0	1	710	
Fort Bayard, 509—Grant Co Veterans Admin Hospital	TB Gen	Vet Ad	430	77		0	89	9	
Fort Stanton, 218—Lincoln Co U S Marine Hospital	TB	USPUS	270	22		0	10	9	
Gallup, 5,992—McKinley Co St Mary's Hospital	Gen	Church	6	25	6	0	10	918	
Gardner, 1,000—Colfax Co Gardner Hospital	Indus	Indus	40	8		0	2	114	
Flagman, 1,091—Valencia Co Flagman Sanit for Tubar	TB	Indian	66	45		0			
Las Vegas, 4,719—San Miguel Co Las Vegas Hospital (Carpenter Memorial)	Gen	Indep	20	7	4	0	2	80	
New Mexico State Hospital	Mental	State	700	6		0	2	188	
St Anthony's Sanitarium and Hospital	Gen	Church	46	20	4	0	5	10	
Lordsburg, 2,009—Hidalgo Co De Moss Hospital	Gen	Indlv	11	4	2	0			
Lordsburg Hospital	Gen	Indep	20	6	4	0			
Mescalero 175—Otero Co Mescalero Indian Hospital	TB Gen	Indian	40	14	4	0	3	4	
Raton, 6,090—Colfax Co New Mexico Miners Hospital	Gen	State	31	12	5	0	6	4	
Rehoboth 170—McKinley Co Rehoboth Mission Hospital	Gen	Church	4	1	6	0	2	110	
Roswell, 11,178—Chaves Co St Mary's Hospital	Gen	Church	62	19	5	0	5	70	
Roy 713—Harding Co Plumlee Hospital	Gen	Indlv	10			0			

NEW MEXICO—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Santa Fe, 11 176—Santa Fe Co St Vincent's Sanatorium and Hospital	TB Gen	Church	85	26	9	14	7	782	
Summit Sanatorium	TB	Indep	50	36				42	
Santa Rita 1890—Grant Co Nevada Consolidated Copper Company Hospital	Gen	Indus	47	12	0	0	4	420	
Shiprock 161—San Juan Co Northern Navajo Hospital	Gen	Indian	02	48	2	0	5	1 100	
Silver City 3519—Grant Co Grant County Hospital	Gen	Indep	20	7	5	0	4	300	
Valmora—Mora Co Valmora Sanatorium	TB	Indep	70	60		0	3	93	
Related Institutions									
Alamogordo 3 000—Otero Co Rousseau Hospital	Gen	Indiv	8	3	3	0	0	110	
Los Lunas 513—Valencia Co New Mexico Home and Training School for Mental Defectives	MenDef	State	68	48		0	0	10	
Santa Fe 11 176—Santa Fe Co Lewis O Cramton Hospital	Gen	Indian	68	20	0	0	5	737	
New Mexico Penit Hospital	Inst	State	40	4		0		129	
Springer 507—Colfax Co Springer Hospital	Gen	Indiv	10	2	3	0	1	34	
Tohatchi—McKinley Co Tohatchi General Hospital	Gen	Indian	10	15	2	0	2	503	
Summary for New Mexico									
Hospitals and sanatoriums	41		3,806		2,364			17,537	
Related institutions	6		210		101			1,529	
Totals	47		4,016		2,465			19,066	
Refused registration	1		20						

NEW YORK

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Albany 127 412—Albany Co Albany Hospital	Gen	Indep	400	377	40	156	60	8,865	
Anthony N Brady Maternity Hospital	Mater	Church	60	40	60	12	18	1 176	
Child's Hospital	Chil	Chureh	65	40		15	2	283	
Memorial Hospital	Gen	Indep	125	99	15	64	16	2,807	
St Peter's Hospital	Gen	Chureh	150	108		87	0	2 634	
Albion 4,878—Orleans Co Arnold Gregory Mem Hosp	Gen	Indep	23	13	12	0	0	518	
Amityville 4 437—Suffolk Co Brunswick General Hosp	Gen	Indep	72	42	15			1 022	
Long Island Home	N&M	Indep	205	129		0	0	83	
Touken Knickerbocker Hall	N&M	Indiv	140	107		0	0	180	
Dr Reed Private Hospital	Gen	Indiv	18	7	3	0	4	261	
Amsterdam 34,817—Montgomery Co Amsterdam City Hospital	Gen	Indep	71	40	15	29		1,360	
Montgomery Sanatorium	TB	County	72	88		0	2	122	
St Mary's Hospital	Gen	Chureh	110	62	20	46	0	1 516	
Auburn 34,022—Cayuga Co Auburn City Hospital	Gen	Indep	133	63	22	42	15	2 924	
Mersey Hospital	Gen	Chureh	80	32	14	16	5	501	
Ballston Spa 4 591—Saratoga Co Benedict Memorial Hospital	Gen	Indep	15	8	6	0	4	262	
Batavia 17,375—Genesee Co St Jerome's Hospital	Gen	Chureh	60	42	12	0	10	1 172	
Women's Hospital	Gen	Indep	52	32	8	10	3	986	
Bath 4 015—Steuben Co Bath Hospital	Gen	Part	50	33	8	14		1 032	
Ikassat Valley Sanatorium	TB	County	44	40		0	5	76	
Bay Shore 4 080—Suffolk Co Dr Klap's Private Hosp	Gen	Indiv	30	11	8	0	7	661	
Southside Hospital	Gen	Indep	74	47	26	0	20	1 017	
Bacon 11,433—Dutchess Co Oak House	N&M	Indep	77	67		0	36	60	
Highland Hospital	Gen	Indep	44	30	13		0	4 077	
Mattawan State Hospital	Mental	State	1 233	1 174		0	4	1 50	
Bedford Hills 1 000—Westchester Co Montefiore Hospital Bedford Sanatorium	TB	Indep	220	223		0	3	393	
Binghamton 76 602—Broome Co Binghamton City Hosp	Gen	City	411	282	39	97	57	6 997	
Binghamton State Hosp	Mental	State	2,044	3 032		48	26	427	
Moore-Owton Hospital	Gen	Indep	25	10	2	0	8	360	
Brentwood 534—Suffolk Co Berkshire State Hospital	Mental	State	4 000	670		0	22	2 018	
Brooklyn 2,60 401—Kings Co Lawrence Hl pital	Gen	Indep	85	67	15	0	15	1,800	
Brooklyn 2,60 401—Kings Co Bay Ridge Sanatorium	Gen	Indep	60	25	12	0	14	786	
Bedford Maternity	Mater	Indep	20	7	20	0		254	
Ben onhurst Maternity	Mater	Indep	25	18	25	0		221	
Bethany Racoon's Ho p	Gen	Chureh	82	61	15		6	1 62	
Beth Hl Ho pital	Gen	Indep	177	122	52	0	16	6 63	
Borough Park Mater Hl p	Gen	Indep	195	130	20	0	42	4 22	
Brooklyn 2,60 401—Kings Co Brooklyn 2,60 401—Kings Co	Mater	Indiv	107	35	100	0			
Brooklyn Home for Con sumptives	LENT	Indep	171	80		0	45	10 221	
Brooklyn Hospital	TB	Indep	116	112		0	5	101	
Brooklyn Hospital	Gen	Indep	260	182	34	129	61	6, 01	

NEW YORK—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Brooklyn State Hosp	Mental	State	1,545	1,543		45	18	1 518	
Brooklyn Womens Hosp	Mater	Indep	49	40	49	0	10	1 337	
Bushwick Hospital	Gen	Indep	102	78	18	33	20	2,755	
Caledonian Hospital	Gen	Indep	100	51	30	22	8	1 790	
Oarson O Peck Mem Hosp	Gen	Indep	90	63	23	0	30	1 019	
Coney Island Hospital	Gen	City	270	232	80	0	35	8,802	
Crown Heights Hospital	Gen	Indep	124	82	23	0	12	2,889	
Cumberland Hospital	Gen	City	292	305	29	57	75	0,796	
Evangelical Deaconess Hosp	Gen	Chureh	60	10	20	0	5	568	
Greenpoint Hospital	Gen	City	254	290	46	0	67	6 151	
Harbor Hospital	Gen	Indep	50	32	10	0	12	1 158	
Hospital of the Holy Family	Gen	Chureh	62	57		0	4	1 348	
House of St Giles the Crispian	Ortho	Chureh	46	40		0	3	194	
Israel Zion Hospital	Gen	Indep	315	246	95	0	112	7,733	
Jewish Hospital	Gen	Indep	547	386	127	95	57	12,891	
Kings County Hosp	Gen	City	1 620	1 912	40	181	234	33 785	
Kingsway Avenue Hospital	Gen	City	410	210		0	100	4 806	
Kingsway Hospital	Gen	Indiv	22	9	10	0	5	252	
Liberty Maternity Hospital	Gen	Indiv	60	33	24	0	8	1 909	
Long Island College Hos pital	Gen	Indep	438	350	42	191	45	0 247	
Lutheran Hospital	Gen	Chureh	92	54	18	0	18	3,797	
Methodist Episcopal Hos pital	Gen	Chureh	320	288	60	94	57	8,698	
Midwood Sanitarium	Gen	Indep	55	41	27	0	18	1 518	
Norwegian Lutheran Deaconesses Home and Hos pital	Gen	Chureh	172	188	30	43	45	3,426	
Prospect Heights Hosp and Brooklyn Maternity	Gen	Indep	151	75	39	59	17	2 514	
Ridgewood Sanitarium	Gen	Indep	14	0	12	0	3	281	
Riverdale Hospital	Gen	Indiv	50	20	36	0	10		
St Catherine's Hosp	Gen	Chureh	262	190	58	103	15	5 074	
St Cecilia Hosp for Women	Mater	Chureh	56	28	50	0	8	1 013	
St Charles Hospital Orthopedic Clinic	Ortho	Chureh	50	30		0	6	350	
St John's Hospital	Gen	Chureh	194	133	40	70	29	8,313	
St Mary's Hospital	Gen	Chureh	248	181	42	87	21	5 190	
St Peter's Hospital	Gen	Chureh	250	200	14	0	28	2 930	
Samaritan Hospital	Gen	Chureh	33	22	12	0	6	944	
Samaritan Hospital, Skene Division	Gen	Chureh	60	33	12	0	12	1 107	
Shore Road Hospital	Gen	Indep	48	30	15	0	4		
Station Hospital	Gen	Army	50	18		0	0	649	
Swedish Hospital	Gen	Chureh	64	48	16			1 016	
Trinity Hospital	Gen	Indep	100	65	15	0	24	2 099	
U S Naval Hospital	Gen	Navy	1,115	896		0	56	5 414	
Unity Hospital	Gen	Indep	176	104	31	0	82	3,290	
Victory Memorial Hosp	Gen	Indep	56	20	13	0	14	629	
Dr Wade's Private Hosp	Gen	Indiv	40	20	12	6	2	710	
Williamsburgh Maternity Hospital	Mater	Indep	75	38	62	0	2	1 412	
Wyckoff Heights Hosp	Gen	Indep	170	123	30	35	11	3 712	
Buffalo 578,070—Erie Co Buffalo City Hospital	Gen	City	825	1 051	38	275	100	12 464	
Buffalo Columbus Hosp	Gen	Indep	79	72	6	20		1 550	
Buffalo General Hosp	Gen	Indep	434	275	26	120	56	7 865	
Buffalo Hospital of the Sisters of Charity (Affil)	Gen	Chureh	214	165	21	25	37	3 891	
Buffalo State Hospital	Mental	State	2 380	2,333		17	30	578	
Central Park Clinic	Gen	Indep	68	38	6	15		1 080	
Children's Hospital	Gen	Indep	211	161	39	60	25	4,397	
Deaconess Hospital	Gen	Indep	190	134	35	85	22	3 599	
Emergency Hospital of the Sisters of Charity (Affil)	Gen	Chureh	100	65		0	26	2 435	
Lafayette General Hosp	Gen	Indep	52	29	9	23	4	1 166	
Memorial Hospital	Gen	Indep	55	33	10	12	14	840	
Mersey Hospital	Gen	Chureh	161	114	38	63	26	3 035	
Millard Fillmore Hosp	Gen	Indep	230	151	70	75	19	5,450	
Providence Retreat	N&M	Chureh	200	175		0			
St Mary's Hospital	Mater	Chureh	85	62	0	24	15	2,231	
State Institute for the Study of Malignant Disease	SL&Ca	State	35	30		0	16	1 900	
U S Marine Hospital	Gen	USPHS	85	81		0	12	727	
Callicoon 680—Sullivan Co Callicoon Hospital	Gen	Indiv	10	New	4	0	2		
Cambridge 1 762—Washington Co Mary McClellan Hosp	Gen	Indep	97	51	15	34	13	848	
Canandaigua 7 541—Ontario Co Brigham Hall Hospital	N&M	Indep	70	46		0	1	48	
Frederick Ferris Thompson Hospital	Gen	Indep	86	60	32	0	22	1 438	
Veterans Admin Hospital	Mental	VetAd	468	New		0	17		
Canastota 4 235—Madison Co Canastota Memorial Hosp	Gen	City	14	6	0	0		178	
Cassadaga 480—Chautauque Co Newton Memorial Hosp	TB	County	180	168		0	14	131	
Castle Point 23—Dutchess Co Veterans Admin Hospital	TB	VetAd	470	446		0	43	552	
Central Islip 675—Suffolk Co Central Islip State Hosp	Mental	State	7 210	6 915	2			2 027	
Central Valley 80—Orange Co Dr MacDonald's House	N&M	Indiv	40	32		0	3	7	
Chenango Bridge 260—Broome Co Broome County Tuberculosis Hospital	TB	County	120	88		0	10	134	
Clifton Springs 1 519—Ontario Co Clifton Springs Sanitarium and Clinic	Gen	Indep	400	166	8	42	2	3,525	
Cohoes 23,220—Albany Co Cohoes Hospital	Gen	Indep	59	43	10	25	3	1 159	
Cold Spring 1 784—Putnam Co Julia L Butterfield Memorial Hospital	Gen	Indep	25	14	5	0	6	566	
Cooperstown, 2,500—Otsego Co Mary Imogene Bassett Hosp	Gen	Indep	70	47	10	0	24	1 000	

Hospitals and Sanatoriums

[illegible]

Key to symbols and abbreviations is on page 911

NEW YORK—Continued

Location	Type of Service	Control	Beds Rated	Capacity	Average Patients	Basinsets	Student Nurses	RNs for Nursing	Patients Admitted
Alton, 9,800—Herkimer Co	Gen	Indep	25	14	6	0	3	5.8	60
Alton Hospital	Gen	Indep	22	22					
Irrington, 3,067—Westchester Co	Gen	Indep	105	70	20	0	31	2,505	
Irrington House	Gen	Indep	269	179	50	116	10	4,088	
Ithaca, 20,708—Tompkins Co	Gen	Indep	46	25		0	15	913	
Tompkins County Memorial Hospital	Gen	Indep	100	70	15	30	29	2,526	
Tamalan, Queens Co	Gen	Indep	104	63	32	44	15	2,663	
Mary Immaculate Hosp	Gen	Indep	173	110	27	78	10	3,715	
Queensboro Hospital	Gen	Indep	35	26		0	17	55	
Westtown, 45,155—Chautauque Co	Gen	Indep	15	6		0	2	9	
Westtown General Hosp	Gen	Indep	4,881	5,326		45	64	1,200	
Woman's Christian Assocn Hosp	Gen	Indep	84	66	10	39	11	2,496	
Union Hospital	Gen	Indep	118	91	15	54	17	2,746	
Charles S. Wilson Memorial Hosp	Gen	Indep	100	40		0	2	101	
Onondaga, 1,400—Westchester Co	Gen	Indep	55	45		0	5	114	
Our Winds	Gen	Indep	28	12		0	4	241	
Albion Farm	Gen	Indep	118	82	16	52	15	1,865	
St. Park, 1,067—Suffolk Co	Gen	Indep	145	144		0	13	128	
St. Park State Hosp	Gen	Indep	20	11	6	0	5	329	
Clinton, 2,088—Ulster Co	Gen	Indep	28	10	4	0	2	4.0	
Clinton Hospital	Gen	Indep	100	59		0		132	
Clinton Hospital	Gen	Indep	30	24	0	0	8	715	
Clinton Hospital	Gen	Indep	53	40		0	1	36	
Clinton Hospital	Gen	Indep	72	40	12	0	25	1,616	
Clinton Hospital	Gen	Indep	178	141		0	20		
Clinton Hospital	Gen	Indep	35	11	10	0			
Clinton Hospital	Gen	Indep	50	21	24	0	10	771	
Clinton Hospital	Gen	Indep	83	64	28	0	20	2,622	
Clinton Hospital	Gen	Indep	132	110		0	4	229	
Clinton Hospital	Gen	Indep	236	235	40	101	22	0,614	
Clinton Hospital	Gen	Indep	225	174		0	20	208	
Clinton Hospital	Gen	Indep	40	24	8	0	13	802	
Clinton Hospital	Gen	Indep	22	17	3	0	7	537	
Clinton Hospital	Gen	Indep	28	15	5	0	5	200	
Clinton Hospital	Gen	Indep	74	49	12	14	15	1,364	
Clinton Hospital	Gen	Indep	2,140	2,217		0	59	635	
Clinton Hospital	Gen	Indep	28	12	6	2	3	408	
Clinton Hospital	Gen	Indep	100	88		0	1	107	
Clinton Hospital	Gen	Indep	99	70	18	10	27	1,762	
Clinton Hospital	Gen	Indep	44	20	8	0	7	642	
Clinton Hospital	Gen	Indep	3,154	3,039		49	55	402	
Clinton Hospital	Gen	Indep	175	141	40	29	55	4,892	
Clinton Hospital	Gen	Indep	24	8	3	0	3	279	
Clinton Hospital	Gen	Indep	24	12	5	0	4	561	
Clinton Hospital	Gen	Indep	16	0	0	0	4	337	
Clinton Hospital	Gen	Indep	101	60	16	0	30	2,100	
Clinton Hospital	Gen	Indep	360	264		0	33	448	

NEW YORK—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated	Capacity	Average Patients	Inpatients	Student Nurses	RNs for Nursing	Patients Admitted
Bronx Hospital*	Gen	Indep	278	78	60	0	5	30	2,038
Bronx Maternity Hospital*	Mater	Indep	38	28	36	0	5	869	
Central Neurological Hosp + D	Neur	City	470	407		0	10	1,132	
Central Park West and Towns Hospitals	Gen	Al & Dr	50	15	2	0	5	732	
Columbus Hospital*	Gen	Church	200	107	40	0	20	1,897	
Columbus Hosp Extension*	Gen	Church	90	41	10	0	18	1,503	
Community Hospital*	Gen	Indep	88	50	10	0	18	1,095	
Concourse Sanitarium	Gen	Indep	45	33	25	0			
Crotona Park Sanitarium	Gen	Indep	40	20	26	0	12	1,160	
Doctors Hospital	Gen	Indep	275	85	50	0	39	2,275	
Druskin Hospital	Gen	Indiv	18	10	18	0	1	403	
Echo Hill Sanitarium	Gen	Indep	15	7	10	0	2	253	
Edith Gibbs Kimball Mem	TB	Indep	23	20		0		72	
Fifth Avenue Hospital* + D	Gen	Indep	301	102	40	100	27	5,101	
Fifty Seven West 57th Street Sanitarium	Gen	Indep	85		15				
Fitch Sanitarium	Gen	Indep	75	41	46	0	18	1,157	
Fordham Hospital* + D	Gen	City	539	387	50	71	113	2,361	
Franklin Maternity Sanit	Mater	Indiv	10	5	10	0	2	109	
French Hospital*	Gen	Frnt	203	147		75	23	3,025	
Gelber Hospital	Gen	Indiv	21	4		0		1,063	
Gouverneur Hospital* + D	Gen	City	160	171	20	39	16	3,938	
Harlem Eye & Ear Hosp + D	EENT	Indep	50	10		0	1	1,421	
Harlem Hospital* + D	Gen	Cy & Co	255	353	40	35	74	10,316	
Herman Knapp Memorial Eye Hospital*	Eye	Indep	50	37		0	4	801	
Hospital for Joint Diseases* + D	Gen	Ortho	355	236		0	50	5,258	
Hunts Point Hospital	Gen	Indep	95	40	45	0	10	1,060	
Jewish Maternity Hospital	Mater	Indep	52	33	52	25		1,311	
Jewish Memorial Hosp + D	Gen	Indep	105	83	12	0	22	2,935	
Knelekrocker Hospital* + D	Gen	Indep	170	124	30	0	64	4,219	
Lebanon Hospital* + D	Gen	Indep	162	123	20	65	13	3,522	
Dr. Leff's Maternity Hosp	Mater	Indiv	51	20	51	0	8	790	
Lenox Hill Hospital* + D	Gen	Indep	349	267	16	123	53	6,052	
Lincoln Hospital* + D	Gen	City	173	262	30	98	54	8,226	
Lutheran Hospital	Gen	Church	100	32	21	0	12	972	
Madison Hospital	Gen	Part	100	33	12	0			
Manhattan Eye Ear and Throat Hospital*	EENT	Indep	214	147				17,390	
Manhattan General Hosp	Gen	Indep	161	75	12	0	18	2,043	
Manhattan State Hosp + D	Mental	State	5,217	5,370				2,348	
Memorial Hospital for the Treatment of Cancer and Allied Diseases* + D	Cancer	Indep	111	90		0	48	2,273	
Metropolitan Hospital* + D	Gen	City	1,550	1,672	40	69	164	0,375	
Middown Hospital*	Gen	Indep	60	30	10	0	17	2,586	
Misericordia Hospital* + D	Gen	Church	247	212	75	72	17	4,622	
Montefiore Hosp for Chronic Diseases* + D	Gen	Chronic	701	630		0	60	1,375	
Morrisania City Hosp* + D	Gen	City	473	427	66	0	105	11,002	
Mount Morris Park Hosp	Gen	Indiv	65	21	30	0	11	1,022	
Mt Sinai Hospital* + D	Gen	Indep	700	532	4	325	75	12,107	
Murray Hill Sanitarium	Gen	Indep	71	32	8	0	17	951	
Neurological Institute of New York* + D	Neur	Indep	211	145		28	40	3,128	
New York City Cancer Institute Hospital*	Cancer	City	202	192		0	19	607	
New York City Hospital* + D	Gen	City	1,060	1,030	30	40	107	6,768	
New York Eye and Ear Infirmary*	EENT	Indep	175	102		0	10	0,027	
New York Foundling Hospital*	Mater	Chil Church	250	230	60	75	20	4,200	
New York Homeopathic Medical College and Flower Hospital*	Gen	Indep	199	147	30	51	36	5,704	
New York Hospital* + D	Gen	Indep	1,020	248	138	102	326	0,160	
New York Infirmary for Women and Children*	Gen	Indep	118	77	37	0	23	2,046	
New York Nursery and Child's Hospital*	Mater	Chil Indep	164	90	02	63	0	3,140	
New York Orthopaedic Dispensary and Hospital*	Ortho	Indep	112	02		0	15	072	
New York Polyclinic Medical School and Hospital* + D	Gen	Indep	303	210	37	0	111	7,474	
New York Post-Graduate Medical School and Hospital* + D	Gen	Indep	413	254		101	57	10,039	
New York Society for the Relief of the Ruptured and Crippled* + D	Ortho	Indep	293	241		0	15	3,671	
New York State Psychiatric Institute and Hospital* + D	Mental	State	200	171		0	67	378	
Park East Hospital	Gen	Indep	120	45	21	0		1,931	
Parkway Hospital	Gen	Indep	65	24	10	0	8	748	
Park West Hospital	Gen	Indep	65	32	10	0	10	2,103	
Wayne Whitney Psychiatric Clinic	(Included in New York Hospital)								
People's Hospital	Gen	Indep	53	43		0	8	1,608	
Protestant Hospital* + D	Gen	Church	534	418		305	14	6,816	
Reconstruction Hospital*	Ortho	Indep	63	25		0	18	1,037	
Riverside Hospital	TB	City	332	373		0	69	1,074	
Roosevelt Hospital* + D	Gen	Indep	370	230		04	75	6,404	
Royal Hospital	Gen	Indiv	100	63		0	10	1,000	
St. Ann's Maternity Hosp	(Included in New York Foundling Hosp)								
St. Elizabeth's Hospital	Gen	Church	100	50		27	0	12,142	
St. Francis Hospital*	Gen	Church	423	214		0	46	5,537	
St. Joseph's Hospital for Consumptives*	TB	Church	340	320		0		845	
St. Luke's Hospital* + D	Gen	Church	326	303		140	63	8,433	
St. Mary's Hospital for Children* + D	Chil	Church	120	75		37	12	2,152	
St. Vincent's Hospital* + D	Gen	Church	225	225		104	4	6,714	
Stonington Hospital	TB	Church	243	214		0	24	1,900	
Sturges Square Hospital	Gen	Indiv	45	33	10	0	8	1,440	
St. George's Hospital for Women*	GynOb	Church	175	245	147		63	5,734	

NEW YORK—Continued

NEW YORK—Continued									
Hospitals and Sanatoriums	Type of Service	Control	Beds Rated	Capacity	Average Patients	Inpatients	Student Nurses	RNs for Nursing	Patients Admitted
Stuyvesant Square Hosp + D	Sk & Ca	Indep	100	42		0	17	1,074	
Sydenham Hospital*	Gen	Indep	158	117	24	0	59	4,178	
Union Hospital	Gen	Indep	55	37	20	0	18	1,182	
U S Marine Hospital*	Gen	USPHS	540	448	10	0	50	4,384	
University Heights Hosp	Gen	Indep	50	37	17	0	8	1,200	
Veterans Admin Hospital*	Gen	VetAd	925	349		0	50	847	
Westchester Square Hosp	Gen	Indep	75	35	22	0	10	1,347	
West Hill Sanitarium	N & M	Indiv	40	26		0	2	68	
West Side Hosp and Disp + D	Gen	Indep	27	17		0	7	933	
Wickersham Hospital	Gen	Indiv	75	30	12	0	21	1,674	
Willard Parker Hospital*	Isr	City	424	307		25	70	6,601	
William Booth Mem Hosp*	Gen	Church	48	30	24		7	863	
Woman's Hospital* + D	GynOb	Indep	217	155	82		88	3,833	
Nagara Falls 75,400—Nagara Co									
Mt St Mary's Hospital*	Gen	Church	144	61	16	43	12	2,169	
Nagara Falls Mem Hosp*	Gen	Indep	175	69	25	57	18	2,051	
Northport 2,528—Suffolk Co									
Veterans Admin Hospital	Mental	VetAd	1,392	1,097		0	48	867	
North Tonawanda 19,019—Nagara Co									
De Graff Memorial Hospital	Gen	City	48	21	18	0	11	960	
Norwich 8,378—Chenango Co									
Chenango Memorial Hosp	Gen	Indep	61	30	15	0	10	998	
Nyack, 5,392—Rockland Co									
Nyack Hosp tal*	Gen	Indep	88	83	16	0	6	2,342	
Ogdensburg 18,915—St Lawrence Co									
A. Barton Hepburn Hosp*	Gen	Church	160	137	20	65	20	3,414	
St Lawrence State Hos pital* + D	Mental	State	2,256	2,230		1	86	23	332
Olean 21,700—Cattaraugus Co									
Mountain Clinic*	Gen	Indiv	35	23	9			877	
Olean General Hospital*	Gen	Indep	81	35	22	0	28	1,447	
Rocky Crest Sanatorium*	TB	County	48	37		0	3	74	
Oneida 10,553—Madison Co									
Broad Street Hospital*	Gen	Indep	55	37	11	28		040	
Oneida City Hospital	Gen	City	10	8	4	0	3	232	
Oneonta 12,536—Otsego Co									
Aurelia Osborn Fox Memorial Hospital*	Gen	Indep	60	42	6	0	10	1,237	
Parshall Private Hosp'tal	Gen	Indiv	31	12	10	0			
Orangeburg, 360—Rockland Co									
Rockland State Hosp tal*	Mental	State	4,174	2,368		30	74	2,705	
Ossining 15,241—Westchester Co									
Ossining Hospital	Gen	Indep	61	35	11	0	18	1,296	
Stony Lodge	N & M	Indiv	18	10		0	2	21	
Oswego 22,652—Oswego Co									
Oswego Hospital	Gen	Indep	89	43	10	0			
Station Hospital*	Gen	Army	25	6		0	0	383	
Otseville 809—Orange Co									
Municipal Sanatorium	TB	City	396	339		0	21	404	
Owego 4,742—Tioga Co									
Glenmary Sanitarium	N & M	Indep	50	11		0		8	
Pawling, 1,204—Dutchess Co									
White Oak Farm	N & M	Indep	10	12		0	1	5	
Peekskill 17,125—Westchester Co									
Peekskill Hospital	Gen	Indep	68	44	10	0	18	1,209	
Penn Yan 5,329—Yates Co									
Soldiers and Sailors Memorial Hospital	Gen	Indep	40	22	10	0	10	835	
Perryburg, 317—Cattaraugus Co									
J N Adam Memorial Hosp*	TB	City	500	472		0	23	393	
Philmont 1,868—Columbia Co									
Columbia County Tuberculosis Sanatorium*	TB	County	70	65		0	8	53	
Plattsburgh 13,348—Clinton Co									
Champlain Valley Hosp + D	Gen	Church	100	07	14	42		2,337	
Physicians Hospital*	Gen	Indep	115	61	18	*2	12	1,936	
Station Hospital*	Gen	Army	75	20		0		741	
Pt Chester 22,662—Westchester Co									
St Luke's Convalescent Hospital	Conv	Church	135	78		0	7	1,012	
United Hospital* + D	Gen	Indep	164	120	36	07	23	4,008	
Pt Jefferson 2,200—Suffolk Co									
John F Mather Memorial Hospital*	Gen	Indep	53	30	12	0	17	923	
St Charles Hospital*	Ortho	Church	250	247		0	7	143	
Wharton Memorial Institute	(Mental Dept of St Charles Hospital)								
Pt Jervis 10,243—Orange Co									
St Francis Hospital	Gen	Church	01	10	10	14		472	
Potsdam 4,156—St Lawrence Co									
Potsdam Hospital	Gen	Indep	16	10	4	0	2	452	
Poughkeepsie 40,253—Dutchess Co									
Hudson River State Hosp + D	Mental	State	4,364	4,330		39	49	829	
Sadler Hospital	Surf	Indiv	10	8		0	7	149	
St Francis Hospital*	Gen	Church	85	59	25	45		2,140	
Samuel and Nettie Bowne Hospital	TB	Indep	50	37		2	0	64	
Samuel W Bowne Memorial Hospital*	TB	Cy & Co	185	182		2	0	162	
Vassar Brothers Hosp + D	Gen	Indep	192	131	33	55	8	3,844	
Queens Village—Queens Co									
Creedmoor Division Brooklyn State Hospital*	Mental	State	3,319	2,378		0	7	464	
New York State Hospital* + D	TB	State	300	291		0	14	473	
Rhinebeck 1,549—Dutchess Co									
Northern Dutchess Health Service Center*	Gen	Indep	30	21	8	7	4	669	
Rhinecland 404—Oswego Co									
Oswego County Sanatorium	TB	County	115	104		0	7	141	
Richmond Hill—Queens Co									
Tameter Hospital* + D	Gen	Indep	132	102	33	55	24	4,042	
Rockester 325,132—Monroe Co									
Belvidere Private Hospital	Gen	Indiv	16	6	12	0	2	184	
Genevieve Hospital* + D	Gen	Indep	184	129	30	67	33	3,947	
Highland Hospital* + D	Gen	Indep	160	125	30	56	43	4,043	
Iola Monroe County Tuberculosis Sanatorium* + D	TB	County	400	25		0	35	674	

NEW YORK—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Vallhalla, 620—Westchester Co									
Grasslands Hospital	Gen	County	888	462	15	56	103	4,962	
Warsaw, 3,477—Wyoming Co									
Wyoming County Community Hospital	Gen	County	60	38	11	22	6	1,240	
Warwick, 2,443—Orange Co									
Warwick Hosp and Clinic	Gen	Indlv	21	12	4	0	1	319	
Waterloo, 4,047—Seneca Co									
Waterloo Memorial Hospital	Gen	Indep	15	8	5	0	5	299	
Watertown, 32,205—Jefferson Co									
House of the Good Samaritan	Gen	Indep	125	75	13	57	15	2,542	
Jefferson Co Tuber Sanatorium	TB	County	75	71	0	0	5	78	
Veraz Hospital	Gen	Church	100	70	14	47		1,776	
Waverly, 5,662—Toga Co									
Toga County General Hospital	Gen	County	50	32	12	0	17	1,084	
Wellsville, 5,674—Allegany Co									
Jones' Memorial Hospital	Gen	City	45	27	10	0	8	972	
Westchester, —Bronx Co									
Station Hospital	Gen	Army	24	12		0		90	
West Haverstraw, 2,834—Rockland Co									
New York State Reconstruction Home	Ortho	State	170	154		0	7	85	
West Point, 1,250—Orange Co									
Station Hospital	Gen	Army	118	51	4	0	11	1,877	
White Plains, 35,830—Westchester Co									
Bloomington Hospital	N&M	Indep	300	20		50	50	283	
New York Orthopedic Dispensary and Hospital	Ortho	Indep	168	170		0	18	749	
St Agnes' Hospital	Gen	Church	91	62	24	0	22	1,450	
White Plains Hospital	Gen	Indep	122	70	22	54		2,545	
Willard, 200—Seneca Co									
Willard State Hospital	Mental	State	2,070	2,672	1	32	53	865	
Wingdale, 150—Dutchess Co									
Harlem Valley State Hospital	Mental	State	1,775	1,071		20	25	413	
Woodhaven, —Queens Co									
St Anthony's Hospital	TB	Church	400	376		0		1,142	
Wynantskill, 167—Rensselaer Co									
Pawling Sanitarium	TB	County	152	141		0	6	161	
Yonkers, 134,646—Westchester Co									
Gray Oaks Hospital	TB	City	53	42		0	4	91	
House of Rest at Sprain Ridge	TB	Indep	100	59		0	2	157	
St John's Riverside Hospital	Gen	Church	170	116	24	53	24	3,706	
St Joseph's Hospital	Gen	Church	100	70	20	0	13	2,350	
Yonkers General Hospital	Gen	Indep	150	70	50	40	25	3,008	
Related Institutions									
Albany, 127,412—Albany Co									
Albany County Hospital	Inst	County	98			0			
Albany's Hospital for Incurables	Incur	Indep	91	91		0			
Evergreens Sanat School	MenDef	Indlv	12	5		0		1	
St Margaret's House and Hospital	Inst	Indep	25	5	12	0	0	77	
Albion, 4,878—Orleans Co									
Albion State Training School	MenDef	State	234	138	7	0	1	191	
Orleans County Hospital and Home	Gen	County	13	17	2	0	1	75	
Amfityville, 4,437—Suffolk Co									
Brunswick Home	N&M	Indep	355	273		0			
Auburn, 36,652—Cayuga Co									
Auburn State Prison Hospital	Inst	State	50	25		0	1	291	
Women's Prison Hospital	Inst	State	12	4	2	0	1	28	
Bath, 4,010—Steuben Co									
Veterans Admin Home	Inst	VitAd	198	318		0	2	2,639	
Bedford Hills, 1,000—Westchester Co									
Westfield State Farm	Inst	State	59	22	8	0	4	444	
Binghamton, 70,662—Broome Co									
Binghamton Training School for Nervous, Backward and Mental Defectives	MenDef	Indlv	50	35		0	2	9	
Dr Lyon's Sanitarium	N&M	Indlv	10	9		0	1		
Breesport, 498—Chemung Co									
Chemung County Almshouse	Inst	County	73	25		0	1	104	
Brewster, 1,664—Putnam Co									
Mountainbrook Farm Sanit	Conv	Indlv	25	17		0	2	50	
Brooklyn, 2,560,401—Kings Co									
Brooklyn Hebrew Home and Hospital for Aged	Inst	Indep	400	458		0		139	
Brooklyn Hebrew Orphan Asylum	Inst	Indep	30	14		0			
Churchill Sanitarium	Gen	Indlv	12	6	3	0	1	116	
Fulth Home for Incurables	Incur	Indep	60	60		0			
Hamilton Private Hospital	Gen	Indlv	23	14	4	0	4	496	
Jewish Sanitarium for Incurables	Incur	Indp	240	241		0	3	182	
Buffalo, 573,076—Frie Co									
Buffalo Eye and Ear Infirmary	ENT	Indep	8	3	2	0	1	572	
Charity Eye, Ear and Throat Hospital of Frie County	ENT	Cy&Co	9	1		0	2	36	
German Roman Catholic Orphan Asylum	Inst	Church	24	7		0	2		
Parkside Sanit and Hosp	Conv	Indlv	40	25		0	1	115	
Salvation Army Maternity Hospital and Home	Mater	Church	4	1	15	0	1	51	
Caleum, 111—Jefferson Co									
Jefferson County Contagious Hospital	Iso	County	12	2	6	0		53	
Camden, 1,912—Oneida Co									
Healthforte—Dr Bell's Private Rest Home	N&M	Indlv	15	3		0	1	7	
Canandalgua, 7,541—Ontario Co									
Canandalgua Health Home	Conv	Indlv	22	7		0	3	62	

Key to symbols and abbreviations is on page 911

NEW YORK—Continued

Related Institutions	Type of Service	Control	Beds Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Castle 900—Wyoming Co Greene Sanitarium	Conv	Indiv	125	45	1	0		90	
Corona—Queens Co Dr Combes Sanitarium	N&M	Indep	66	45		0		64	
Cortland 15 043—Cortland Co Cortland Sanitarium	Conv	Indiv	12	10		0			
Dannemora 3348—Clinton Co Clinton Prison General and Tuberculosis Hospital	Inst	State	234	210		0	1	917	
Delhi 1840—Delaware Co Delhi Hospital	Gen	Cy&Co	11	4	3	0	3	225	
Dewittville 153—Chautauqua Co Chautauqua County Alms house and Hospital	Inst	County	110	103		0			
Eastview, 161—Westchester Co Solomon and Betty Loeb Mem- orial Home for Conv	Conv	Indep	105	112		0	3	1 600	
Edmeston 749—Otsego Co Otsego School for Backward Children	MenDef	Part	25	20		0		31	
Elmira 47,337—Chemung Co Elmira Reformatory	Inst	State	92	60		0	2	2 341	
Federation Farm Gleason Health Resort	TB	County	22	21		0		0	
Far Rockaway—Queens Co Brooklyn Jewish Home for Convalescents	Conv	Indep	44	44		0		906	
Wave Crest Convalescent Home and Seaside Hosp	Conv	Indep	160	74		0	3	325	
Freeport 15 467—Nassau Co Freeport Nursing Home	Gen	Indiv	7	5	4	0	2	230	
Green Ridge (Staten Island P O)—Richmond Co St Michael's Home for Deaf Mute Children	Inst	Church	35	5		0			
Harrison 1 485—Westchester Co Miriam Osborn Memorial Home	Inst	Indep	21	15		0	2		
Herkimer, 10 446—Herkimer Co Herkimer County Hospital	Inst	County	18	8		0	1	30	
Hudson 12,337—Columbia Co New York State Training School for Girls	Inst	State	52	5	25	0	2	114	
Industry, 1—Monroe Co Industry General Hospital	Inst	State	45	23		0	3	778	
Ithaca 20,708—Tompkins Co Conklin Sanitarium	Gen	Indiv	12	9		0	1	362	
Reconstruction Home	Ortho	Indep	60	20		0	1	52	
Katonah 1 400—Westchester Co Bailey Hall	MenDef	Indep	35	28		0			
Lake Ronkonkoma 49—Suffolk Co Gery de Vabre Academy	MenDef	Part	18	7		0	2		
Lockport 23 160—Niagara Co Old Fellows Home	Inst	Frat	40	40		0			
Machias 627—Cattaraugus Co Cattaraugus County Hosp	Inst	County	20	15		0	0		
Mamaroneck 11 766—Westchester Co Dr Wellington's House	N&M	Indiv	22	14		0	2	8	
Marcy 112—Onondaga Co Camp Healthmore	TB	City	54	50		0	2	68	
Margaretville 771—Delaware Co Margaretville Hospital	Gen	Indep	11	4	3	0	3	220	
Millgrove 110—Erie Co Erie County Home and In- firm	Inst	County	585	318		0	20		
Erie Co Penitentiary Hosp	Inst	County	22	8		0		158	
Minerva 837—Essex Co Minerva Hospital	Indus	Indus	14	0	1	0	2	215	
Mohegan Lake 105—Westchester Co Yorkville Home	Conv	Indep	50	40		0	1	126	
Mt Vernon 61 409—Westchester Co Bikur Cholim Conv Home for Greater New York	Conv	Indep	38	17		0	1	331	
Napanoch 633—Ulster Co Institution for Male Defec- tive Delinquents	MenDef	State	850	922		0	0	555	
Newark 7 649—Wayne Co Newark State School	MenDef	State	1 307	1 347		0	5	424	
New Hartford 1 885—Onondaga Co Children's Hospital Home of Utica	Ortho	Cy&Co	20	20		0	2	62	
New York City 4 211 679—New York Co Abraham Home for In- curables	Incur	Indep	245	243		0	6	65	
Bryant Sanitarium	Mater	Indep	10	3	10	0	3	101	
Colored Orphan Asylum	Inst	Indep	26	10		0	1	274	
Correction Hospital	Inst	City	360	265		0	0	3 600	
Floating Hospital	Chil	Indep	32	26		0			
Hart Island Prison Hosp	Inst	City	32	10		0	0	267	
Hebrew Convalescent Home	Conv	Indep	80	63		0	1	576	
Home for Aged and Infirm Hebrews	Inst	Indep	126	120		0	1		
Home for Hebrew Infants	Inst	Indep	61	57		0	1	1 184	
Home for Incurables	Incur	Church	349	349		0	5	114	
House of Calvary	Cancer	Church	140	81		0	5	315	
House of the Holy Comforter	Incur	Church	100	64		0	2	19	
Isabella Home	Inst	Indep	92	92		0	0	50	
Jewish Home for Conv	Conv	Indep	100	50		0	1	50	
Mt Eden Hospital	Gen	Indiv	40	15	30	0	6	751	
New York City Children's Hospital	MenDef	City	1 425	1 425		0	25	687	
New York County Peniten- tiary Hospital	Inst	County	100	1		0	0	579	
Prisoners Hospital	N&M	Indiv	25	12		0	2	185	
St Andrew's Conv Hosp	Conv	Church	32	16		0	4	551	

NEW YORK—Continued

Related Institutions	Type of Service	Control	Beds Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
St. Rose's Free Home for Incurable Cancer	Cancer	Church	80	75		0		330	
Tonawanda Hospital	N&T	Indep	53	8		0	4	3 195	
Dr Wiley Wilson's Private Hospital (col)	Gen	Indiv	8	5	2	0	3	131	
Niagara Falls 75 460—Niagara Co Niagara Falls Municipal Hos- pital	Iso	City	38	4		0	4	120	
Onondaga 260—Onondaga Co Onondaga County Hospital	Inst	County	150	139	7	0	5	470	
Oriskany, 1 142—Onondaga Co Eastern Star Home and In- firm	Inst	Frat	35	20		0	2	15	
Ossining 15 241—Westchester Co Greenmont-on Hudson	N&M	Indiv	19	0		0	1	2	
Sing Sing Prison Hosp	Inst	State	80	52		0	2	1,560	
Otisville, 699—Orange Co Sunnyside Private Sanat	TB	Indiv	14	10		0	0	50	
Oxford 1 601—Chenango Co New York State Woman's Relief Corps Home	Inst	State	50	41		0	3	50	
Patchogue 6 860—Suffolk Co Bay Avenue Hospital	Gen	Indiv	20	7	7	0	2	273	
Pelham Manor 4 908—Westchester Co Pelham Home for Children	Conv	Indep	30	20		0	3	47	
Pittsford 1 460—Monroe Co Frances School for Retarded Children	MenDef	Part	0	5		0			
Plattsburgh 13 340—Clinton Co Children's Home of Northern New York	Inst	Church	12	1		0	0	14	
Pleasantville 4 540—Westchester Co Hebrew Sheltering Guardian Orphan Asylum	Inst	Indep	32	4		0	2	1 500	
Pt Jervis 10 243—Orange Co Deer Park Hospital	Gen	Indep	15	7	4	0	3	450	
Poughkeepsie, 40,288—Dutchess Co Poughkeepsie City Home and Infirm	Inst	City	20	16		0	0	7	
Swift Infirm Vassar Col- lege	Gen	Indep	30	11		0	0	500	
Remsen 437—Onondaga Co Whitesboro Sanitarium and Adirondack Annex	Alcoh	Indiv	15	1		0		12	
Rhinebeck 1 569—Dutchess Co Holiday Farm Home for Convalescent Children	Conv	Indiv	50	48		0	1	255	
Rochester 328 132—Monroe Co Convalescent Hospital for Children	Conv	Indep	48	37		0	3	157	
Field Sanitarium	Conv	Indiv	14	new		0	1	38	
Knorr Sanitarium Conva- lescent Home	Conv	Indiv	85	20		0	6	720	
Rockaway Park (Rockaway Beach P O)—Queens Co Convalescent Home for He- brew Children	Conv	Indep	100	116		0			
Rome 32,338—Onondaga Co Newlands School	MenDef	Indiv	6	new		0			
Rome State School	MenDef	State	3 000	3 063		0	10	407	
Rye 8 712—Westchester Co Halcyon Rest	N&M	Indiv	25	18		0	1		
Schenectady 95 692—Schenectady Co General Electric Company In- dustrial Hospital	Indus	Indus	14	6		0	7		
Schenectady City Hospital	Iso	City	35	27		4	4	416	
Schenectady County Alms house and Hospital	Inst	County	45	40		0	1	300	
Sea Cliff 3 456—Nassau Co Country Home for Conva- lescent Babies	Conv	Indep	70	50		0	4	244	
Staten Island, 158 340—Richmond Co New York City Farm Colony	Inst	City	1 330	1 183		0	5	1 067	
Sailors Snug Harbor Hosp Seaside Hospital	Gen	Indep	200	165		0	5	480	
Syracuse 299 326—Onondaga Co Syracuse State School	Chil	Indep	170	181		22	27	868	
Thiells 320—Rockland Co Letchworth Village	MenDef	State	1 085	1 011		0	4	131	
Troy 72 703—Rensselaer Co Rensselaer County Hosp	Chron	County	80	75		0	1	225	
Troy Orphan Asylum	Inst	Indep	31	5		0	1	539	
Tupper Lake 5 271—Franklin Co Veterans Mountain Camp	Conv	Indep	54	45		0	1	155	
Valhalla 620—Westchester Co Blythedale Home for Conva- lescent Crippled Children	Ortho	Indep	72	60		0	3	89	
Valley Cottage 212—Rockland Co Reed Farm and Nichols Cot- tage Convalescent Home	Conv	Indiv	24	25		0		87	
Wassail, 260—Dutchess Co Wassail State School	MenDef	State	2,100	1 115		0	4	1,284	
Watertown 32,295—Jefferson Co Jefferson County Home	Gen	County	32	30		0	0		
Wellsville 5 674—Allegany Co Wellsville Sanitarium	Conv	Indiv	50	7		0			
White Plains 5,850—Westchester Co Campbell Cottages for Con- valescent Children	Conv	Indep	80	76		0	6	839	
Martine Farm Children's Cardiac Conv Home	Conv	Indiv	25	25		0		71	
Williamsville 3 119—Erie Co Josephine Goodyear Conva- lescent Home	Conv	Indiv	60	40		0	4	255	
Yonkers 134 646—Westchester Co Hebrew National Orphan Home	Inst	Indep	9	1		0	1	80	
Leake and Watts Home Sch	Inst	Indep	5	5		0	1	161	

NEW YORK—Continued

Related Institutions	Type of Service	Control	Beds, Rated Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Sunny Rest Sanatorium	Conv	Indiv	14	10				
Yonkers City Hospital for Communicable Diseases	Isr	City	87	21		0	10	748
Yorl town Heights, 1,700—Westchester Co	Men	Def Part	23	16		0	0	
Sound View School								
Summary for New York	Number	Beds	Average Patients	Patients Admitted				
Hospitals and sanatoriums	463	129,651	107,393	1,608,476				
Related institutions	140	22,767	19,401	46,246				
Totals	603	152,420	126,794	1,654,722				
Refused registration	10	1,001						

NORTH CAROLINA

Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Albemarle, 7,497—Stanly Co	Gen	Indep	0	13	4	0		
Asheville 1010—Buncombe Co	TB	Indiv	77	13		0		5
Asheville 172—Buncombe Co	N & M	Indep	175	44	22	12		126
Asheville, Mission Hospo	Gen	Indep	101	66	17	41	8	2,406
Asheville Physiatric Insti	Metab	Indiv	25	8		0	1	
Aston Park Hospital	Gen	Indep	67	37	8	0	0	1,176
Interview Cottage Sanit	TB	Indiv	130	60		0	4	105
Norburn Hospital	Surg	Part	75	15	1	0	0	573
St Joseph's Sanatorium	TB	Church	91	86		0	4	151
Sunset Heights	TB	Indep	74	15		0	2	48
Violet Hill Sanatorium	TB	Indiv	40	30		0	3	70
Zephyr Hill Sanatorium	TB	Indiv	55	22		0		40
Baldin 3,040—Stanly Co	Gen	Indus	25	9	4	0		
Baldin Hospital	Gen	Indus	25	9	4	0		
Banners Plk, 740—Avery Co	Gen	Church	50	20	5	22	3	950
Grace Hospital	Gen	Church	50	20	5	22	3	950
Beaufort, 2,957—Carteret Co	Gen	Indep	12	7	3	0	3	241
Potter Emergency Hosp	Gen	Indep	12	7	3	0	3	241
Biltmore, 172—Buncombe Co	Gen	Indep	53	12	10	14	4	783
Biltmore Hospital	TB	Part	60			0	2	
Hillcroft Sanatorium	Co							
Black Mountain, 737—Buncombe Co	N & M	Indep	20	0	0	1	70	
Beallmont Park Sanat	TB	Indep	30	15	0	1	18	
Cragmont Sanatorium	TB	Frat	25	18	0	1	19	
Fellowship Sanatorium	TB	Frat	25	18	0	1	19	
Brevard, 2,339—Transylvania Co	Gen	Part	20	8	2	2	2	79
Lady Memorial Hospital	Gen	Part	20	8	2	2	2	79
Burlington, 9,737—Alamance Co	Gen	Part	43	18	2	12	2	500
Rainey Hospital	Gen	Part	43	18	2	12	2	500
Charlotte, 82,675—Mecklenberg Co	Gen	Part	20	10	0	5	1	407
Charlotte, Eye, Ear and Throat Hospital	FENT	Part	20	10	0	5	1	407
Good Samaritan Hospital (col)	Gen	Church	56	30	0	20	3	1,64
Mersey Hospital	Gen	Church	110	38	15	39		1,43
New Charlotte Sanat	Gen	Indep	95	62	10	23	9	2,241
Presbyterian Hospital	Gen	Church	100	80	20	50	5	3,06
St Peter's Hospital	Gen	Church	60	45	12			
Cherokee, 35—Swain Co	Gen	Indian	22	10	2	0		
Eastern Cherokee Indian Hospital	Gen	Indian	22	10	2	0		
Concord, 11,820—Cabarrus Co	Gen	Indep	20	7	4	0	5	240
Concord Hospital	Gen	Indep	20	7	4	0	5	240
Crossnore, 181—Avery Co	Gen	Indep	17	0	3	0	1	363
Garrett Memorial Hosp	Gen	Indep	17	0	3	0	1	363
Durham 52,037—Durham Co	Gen	Indep	400	144	50	43	70	3,047
Duke Hospital*	Gen	Indep	93	02	9	32		1,271
Lincoln Hospital (col)*	Gen	Indep	25	6		0	5	1,225
McPherson Hospital	FFNT	Indiv	166	00	24	70	9	3,111
Watts Hospital*	Gen	Indep	166	00	24	70	9	3,111
Elizabeth City, 10,037—Pasquotank Co	Gen	Indep	33	11	6	0	4	430
Albemarle Hospital	Gen	Indep	33	11	6	0	4	430
Elkin, 2,357—Surry Co	Gen	Church	40	15	4	0	7	511
Hugh Chatham Memorial Hospital	Gen	Church	40	15	4	0	7	511
Irwin, 4,000—Harnett Co	Gen	Indus	74	8	7	0	4	295
Good Hope Hospital	Gen	Indus	74	8	7	0	4	295
Fayetteville, 13,049—Cumberland Co	Gen	Indep	100	40	6	35	4	1,530
Highsmith Hospital*	Gen	Indep	80	30	10	20	2	1,117
Pittman Hospital	Gen	Indep	80	30	10	20	2	1,117
Fletcher, 60—Henderson Co	Gen	Indep	70	16	2	13	5	328
Mountain Sanit and Hosp	Gen	Indep	70	16	2	13	5	328
Ft Bragg—Cumberland Co	Gen	Army	83	50	0	0	10	1,553
Station Hospital	Gen	Army	83	50	0	0	10	1,553
Franklin, 1,094—Macon Co	Gen	Indiv	62	48	2	0	22	3,166
Angel Bros Hospital	Gen	Indiv	62	48	2	0	22	3,166
Gastonia, 17,093—Gaston Co	Gen	Indep	50	20	8	10	2	
City Hospital	Gen	Indep	40	20	8			
Gaston Sanatorium	Gen	Indep	40	20	8			
North Carolina Orthopedic Hospital	Ortho	State	150	148		0	5	381
Goldsboro, 14,087—Wayne Co	Gen	Indep	121	29	8	0	10	1,075
Goldsboro City Hospital	Mental	State	1,019	1,820		2		506
Greensboro, 53,560—Guilford Co	Gen	Indep	46	33	5	0	9	1,401
Clinic Hospital	N & M	Indiv	30	20		0	2	384
Greenwood Park Sanitarium	N & M	Indiv	30	20		0	2	384
Reaves Eye, Ear, Nose and Throat Infirmary	EENT	Indiv	15	7		0		
L Richardson Memorial Hos	Gen	Indep	60	13	4	18	4	779
pital (col)*	Gen	Church	90	59	0	53	5	1,091
St Leo's Hospital	Gen	Church	90	59	0	53	5	1,091

NORTH CAROLINA—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Sternberger Children's Hosp	Gen	Indep	40	18	8	4	5	584
Wesley Long Hospital	Gen	Indep	50	23	8	0	14	882
Greenville, 9,194—Pitt Co	Gen	Indep	32	14	4	0	7	606
Pitt Community Hospital	Gen	Indep	32	14	4	0	7	606
Hallifax, 321—Hallifax Co	Gen	Indep	32	14	4	0	7	606
Hallifax County Tuberculosis Sanitarium	TB	County	24	18		0	1	32
Hanlet, 4,801—Richmond Co	Gen	Indep	70	10	4	11	3	702
Hanlet Hospital	Gen	Indep	70	10	4	11	3	702
Henderson, 6,745—Yancey Co	Gen	Church	30	17	2	4	2	344
Jubilee Hospital (col)	Gen	Indep	30	13	5	10	2	907
Maria Parham Hospital	TB	County	14	11		0		
Scott Parker Sanatorium	Gen	County	20	15				
Vance County Hospital	Gen	County	20	15				
Hendersonville, 5,070—Henderson Co	TB	Indiv	24	6		0	2	
Idgemont Sanatorium	Gen	Indep	50	10	6	0	4	527
Patton Memorial Hospital	Gen	Indiv	35	21	3	16	2	1,23
Heleory, 7,301—Catawba Co	Gen	Part	35	21	3	16	2	1,23
Richard Baker Hospital	Gen	Indiv	68	54	7	30	5	2,000
High Point, 36,745—Guilford Co	Gen	Part	35	21	3	16	2	1,23
Guilford General Hospital	Gen	Indiv	68	54	7	30	5	2,000
High Point Hospital	Gen	Indiv	68	54	7	30	5	2,000
Huntersville, 800—Mecklenburg Co	TB	County	162	143		0	5	310
Mecklenburg Sanatorium	TB	County	162	143		0	5	310
Jaunestown, 157—Guilford Co	TB	County	106	107		0	8	161
Guilford County Sanat	TB	County	106	107		0	8	161
Kinston, 11,362—Lenoir Co	Gen	Indep	82	14	3	0	2	711
Memorial General Hospital	Gen	Indep	26	11	6	0	8	482
Parrott Memorial Hospital	Gen	Indep	26	11	6	0	8	482
Leaksville, 1,814—Rockingham Co	Gen	Indep	30	21	5	15	3	908
Leaksville Hospital	Gen	Indep	30	21	5	15	3	908
Lenoir, 6,532—Caldwell Co	Gen	Indep	25	9		0	3	437
Caldwell Hospital	Gen	Indep	25	9		0	3	437
Lexington, 9,652—Davidson Co	Gen	Indiv	24	8	6	0	5	427
Davidson Hospital	Gen	Indiv	24	8	6	0	5	427
Lincolnton, 4,781—Lincoln Co	Gen	Indep	12	3	2	0		118
Gamble Clinic	Gen	Indiv	47	15	4	11	2	565
Lincoln Hospital	Gen	Indiv	47	15	4	11	2	565
Lumberton, 4,110—Robeson Co	Gen	Indiv	60	18	5	21	4	1,162
Baker Sanatorium	Gen	Indep	35	24				
Thompson Mem Hosp	Gen	Indep	35	24				
Marion, 2,467—McDowell Co	Gen	Indep	35	12	5	0	4	689
Marion General Hospital	Gen	Indep	35	12	5	0	4	689
Monroe, 6,100—Union Co	Gen	Indiv	60	20	12	21	2	663
Flenn Fitzgerald Hospital	Gen	Indiv	60	20	12	21	2	663
Quality Hill Sanat (col)	Gen	Indep	16	7	4	0	1	156
Mooreville, 5,019—Iredell Co	Gen	Indep	36	14	4	14		707
Iowanna Hospital	Gen	Indep	36	14	4	14		707
Morehead City, 3,483—Carteret Co	Gen	City	25	11	6	0	2	363
Morehead City Hospital	Gen	City	25	11	6	0	2	363
Morganton, 6,001—Burke Co	N & M	Indiv	75	41		0	2	167
Brooklands Sanatorium	Gen	Church	32	21	10	17	3	1,044
Grace Hospital	Gen	Church	32	21	10	17	3	1,044
State Hospital	Mental	State	2,030	1,870		0		
Mt Airy, 6,045—Surry Co	Gen	Indiv	44	26	6	22	5	615
Martin Memorial Hospital	Gen	Indiv	44	26	6	22	5	615
New Bern 11,881—Craven Co	Gen	Indep	31	13	1	10	3	648
St Luke's Hospital	Gen	Indep	31	13	1	10	3	648
North Wilkesboro, 3,608—Wilkes Co	Gen	Indiv	25	16	2	0	5	668
Wilkes Hospital	Gen	Indiv	25	16	2	0	5	668
Oteen, 504—Buncombe Co	TB	Vet Ad	612	360		0	67	1,131
Veterans Admin Hospital	TB	Vet Ad	612	360		0	67	1,131
Oxford, 4,101—Granville Co	Gen	Part	25	10	6	11	1	610
Brantwood Hospital	Gen	Part	25	10	6	11	1	610
Susie Clay Chatham Memo	Gen	Indep	14	7		0	2	150
rial Hospital (col)	Gen	Indep	14	7		0	2	150
Pinehurst, 65—Moore Co	Gen	Indep	33	27	6	0	9	861
Moore County Hospital	Gen	Indep	33	27	6	0	9	861
Raleigh, 37,379—Wake Co	Gen	Indiv	30	11	7	10	2	21
Mary Elizabeth Hospital	Gen	Indiv	30	11	7	10	2	21
McCauley Private Hospital (col)	Gen	Indiv	10	5	2	0		
Rev Hospital*	Gen	Cy & Co	110	78	16	43	5	2,915
St Agnes Hospital (col)*	Gen	Church	90	54	10	31	4	891
State Hospital	Mental	State	2,150	1,871		11	6	602
Reidsville 6,851—Rockingham Co	Gen	Indiv	40	25	10	0		
Annie Penn Mein Hospital	Gen	Indiv	40	25	10	0		
Roanoke Rapids 3,401—Hallifax Co	Gen	Indep	88	58	12	20	5	1,830
Roanoke Rapids Hospital	Gen	Indep	88	58	12	20	5	1,830
Rocky Mount, 21,412—Edgecombe Co	Gen	Indus	30	28		0	0	834
Atlantic Coast Line Hosp	Gen	Indus	30	28		0	0	834
Park View Hospital*	Gen	Indep	40	18	5	11	4	601
Rocky Mount Sanitarium	Gen	Indep	40	18	5	11	4	601
Rutherfordon, 2,020—Rutherford Co	Gen	Indep	60	32	4	18	3	1,431
Rutherford Hospital	Gen	Indep	60	32	4	18	3	1,431
Salisbury 16,951—Rowan Co	Gen	Indep	50	21	10	23	4	936
Rowan General Hospital	Gen	Indep	50	21	10	23	4	936
Sanatorium, 57—Hoke Co	TB	State	400	168				66
North Carolina Sanat	TB	State	400	168				66
Sanford, 4,253—Lee Co	Gen	County	47	12	8	0	4	470
Lee County Hospital	Gen	County	47	12	8	0	4	470
Shelby, 10,789—Cleveland Co	Gen	County	44	26	6	10	4	1,000
Shelby Hospital	Gen	County	44	26	6	10	4	1,000
Smithfield, 2,543—Johnston Co	Gen	Indep	35	17	8	0	6	610
Johnston County Hospital	Gen	Indep	35	17	8	0	6	610
Southern Pines, 2,524—Moore Co	TB	Indep	60	37		0	5	93
Pine Crest Manor Sanat	TB	Indep	60	37		0	5	93
Southport, 1,700—Brunswick Co	Gen	Cy & Co	35	14	4	0	4	520
Brunswick County Hosp	Gen	Cy & Co	35	14	4	0	4	520
Statesville, 10,480—Iredell Co	Gen	Indep	120	67	12	40	8	2,493
Davis Hospital*	Gen	Indiv	50	35	6	20		1,322
Long's Sanatorium	Gen	Indiv	50	35	6	20		1,322
Sylvia, 1,340—Jackson Co	Gen	Indep	26	10	4	0	4	240
C J Harris Community Hospital	Gen	Indep	26	10	4	0	4	240

NORTH CAROLINA—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Tarboro 6370—Edgecombe Co	TB	County	30	18	0	0	25		
Edgecombe County Tuberculosis Sanatorium	Gen	Indep	41	12	5	0	4	550	
Edgecombe General Hosp	Gen	City	31	18	5	0	5	520	
Thomasville 1000—Davidson Co	Gen	City	31	18	5	0	5	520	
City Memorial Hospital	Gen	City	31	18	5	0	5	520	
Tryon 1670—Polk Co	Gen	Indep	27	10	3	0	4	545	
St Luke's Hospital	Gen	Indep	27	10	3	0	4	545	
Wadesboro 3124—Anson Co	Gen	Indep	35	20	5	12	2	683	
Anson Sanatorium	Gen	Indep	35	20	5	12	2	683	
Washington 7035—Beaufort Co	Gen	Indep	12	10	5	0			
Riverview Hospital	Gen	Indep	35	10	5	23	3	515	
Taylor Hospital	Gen	Indep	35	10	5	23	3	515	
Waynesville, 2414—Haywood Co	Gen	County	45	22	4	0	8	603	
Haywood County Hospital	Gen	County	45	22	4	0	8	603	
Wilmington 3220—New Hanover Co	Gen	Indiv	35	7	3	0	7	370	
Bulluck Hospital	Gen	Indiv	35	7	3	0	7	370	
Community Hosp (col) 000	Gen	Indep	25	13	4	10	2	522	
James Walker Memorial Hospital	Gen	Indep	130	07	20	08	8	3 063	
Wilmington Tuberculosis Sanatorium	TB	Indep	35	25		0	8	65	
Wilson, 12 613—Wilson Co	Gen	City & Co	18	7	2	0	1	185	
Mercy Hospital (col) 0	Gen	Indep	35	23	7	14	5	875	
Moore-Herring Hospital	Gen	Indep	35	23	7	14	5	875	
Winston Salem 75274—Forsyth Co	Gen	City	235	70	25	48	10	3 153	
City Memorial Hospital	Gen	City	235	70	25	48	10	3 153	
Forsyth County Tuberculosis Sanatorium	TB	County	134	120		0	12	197	
North Carolina Baptist Hospital	Gen	Church	92	68	10	38	6	2 025	
Wrightsville Sound—New Hanover Co	Gen	Church	92	68	10	38	6	2 025	
Babies Hospital	Chil	Indep	30	10	5	0	8	110	
Related Institutions									
Asheville 50 103—Buncombe Co	TB	Indiv	23	20		0	0	23	
Elmhurst Cottage Sanit	TB	Indiv	30	20		0	2	25	
Royce Cottage Sanitarium	TB	Indiv	30	20		0	2	25	
Sherwood Sanatorium	TB	Indiv	20	15		0	1	24	
Candler 50—Buncombe Co	Gen	Church	20	15	1	0	2	50	
Pisgah Sanit and Hosp	Gen	Church	20	15	1	0	2	50	
Charlotte 62675—Mecklenburg Co	Mater	Indep	6	1	4	0		40	
Florence Crittenton Industrial Home	Chil	Indep	22	20		0	1	40	
Junior League Baby Hosp	Inst	Church	12	1	4	0	1	181	
Thompson Orphanage and Training Institution	Inst	Church	12	1	4	0	1	181	
Davidson 144—Mecklenburg Co	Inst	Indep	17	3		0	1	248	
Davidson College Infirmary	Inst	Indep	17	3		0	1	248	
Durham 52 037—Durham Co	Mater	Church	40	25	27	0	1	70	
Salvation Army Home and Hospital	Mater	Church	40	25	27	0	1	70	
Fayetteville 18 049—Cumberland Co	EENT	Part	10	1		0	1	25	
Fayetteville Eye, Ear, Nose and Throat Hospital	EENT	Part	10	1		0	1	25	
Franklin 1 094—Macon Co	Gen	Indiv	10	4		0			
Lyle Hospital	Gen	Indiv	10	4		0			
Gastonia, 17 093—Gaston Co	Gen	City & Co	12	2	1	0			
Gaston Colored Hospital	Gen	City & Co	12	2	1	0			
Hendersonville 5 070—Henderson Co	Conv	Indiv	20	4		0	2	30	
Dixon Health Resort	Conv	Indiv	20	4		0	2	30	
Kinston 11 362—Lenoir Co	MenDef	State	645	641		0	1	74	
Caswell Training School	MenDef	State	645	641		0	1	74	
North Wilkesboro 3 608—Wilkes Co	IB	County	14	4		0		12	
Wilkes County Tuber Hut	IB	County	14	4		0		12	
Oxford 4 101—Granville Co	Inst	Frat	72	10	6	0		250	
William J Hicks Memorial Hospital	Inst	Frat	72	10	6	0		250	
Raleigh 37 370—Wake Co	Inst	State	18	5		0	1	181	
North Carolina State School for the Blind and Deaf	Inst	State	18	5		0	1	181	
Wake County Home Hosp	Inst	County	110	110		0	1	39	
Saluda 33—Polk Co	Chil	Indiv	55	32		0			
Infants and Children's Sanit	Chil	Indiv	55	32		0			
Spartanburg Baby Hosp	Chil	Indep	25	10		0	4	75	
Tarboro 6 370—Edgecombe Co	Gen	Indiv	8	4	5	0	8	195	
Bass Memorial Hospital	Gen	Indiv	8	4	5	0	8	195	
Thomasville 10 000—Davidson Co	Inst	Church	30	0		0	1	500	
Mills Home Infirmary	Inst	Church	30	0		0	1	500	
Wake Forest 1,550—Wake Co	Inst	Indep	10	2		0	1	118	
Wake Forest College Hosp	Inst	Indep	10	2		0	1	118	
Winston Salem 75 74—Forsyth Co	Inst	Church	48	7		0	1	109	
Health Memorial Infirmary of the Children's Home	Inst	Church	48	7		0	1	109	
Summary for North Carolina									
Hospitals and sanatoriums	Number	Beds	Average Patients	Patients Admitted					
Related institutions	12	14 199	10 247	102 245					
Totals	24	1,260	951	2,365					
Related registration	156	15 450	11,185	104 613					
	7	206							

NORTH DAKOTA

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Le Sueur 60—Rolette Co	Gen	Indian	50	41	5	0	4	700	
Turtle Mountain Indian Hos	Gen	Indian	50	41	5	0	4	700	
Le Sueur 11 000—Burlingame Co	Gen	Church	140	84	12	65	9	2 412	
St. Mark's Hospital	Gen	Church	144	65	15	55	1	51	

NORTH DAKOTA—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Bottineau 1,322—Bottineau Co	Gen	Church	50	22	7	10	8		900
St Andrew's Hospital	Gen	Church	50	22	7	10	8		900
Bowman 888—Bowman Co	Gen	Indiv	10	2	6	0	2		111
Bowman Hospital	Gen	Indiv	10	2	6	0	2		111
Carrington, 1,717—Foster Co	Gen	Indep	25	10	0	0	4		500
Carrington Hospital	Gen	Indep	25	10	0	0	4		500
Devils Lake 5 451—Ramsey Co	Gen	Indep	40	22	0	17	4	1	790
General Hospital	Gen	Church	70	20	12	16	5	1	068
Mercy Hospital	Gen	Church	70	20	12	16	5	1	068
Dickinson, 5 025—Stark Co	Gen	Church	100	41	11	0	4	1	134
St Joseph's Hospital	Gen	Church	100	41	11	0	4	1	134
Drayton 602—Pembina Co	Gen	Indep	14	7	3	0	1		290
Drayton Hospital	Gen	Indep	14	7	3	0	1		290
Edgeley 821—La Moure Co	Gen	Indiv	12	6		0	3		255
Edgeley Hospital	Gen	Indiv	12	6		0	3		255
Fargo 28 619—Cass Co	Gen	Church	170	88	30	100	12	2	782
St John's Hospital	Gen	Church	170	88	30	100	12	2	782
St Lukes Hospital	Gen	Church	108	63	17	59	6	2	272
Veterans Admin Hospital	Gen	VetAd	57	48		0	8		580
St Totten 61—Beacon Co	Gen	Indian	33	18	4	0	3		821
St Totten Hospital	Gen	Indian	33	18	4	0	3		821
St Yates 400—Sioux Co	Gen	Indian	30	15	2	0	2		578
Standlag Rock Indian Hosp	Gen	Indian	30	15	2	0	2		578
Grafton, 3 186—Walsh Co	Gen	Church	44	24	6	13	3		927
Grafton Deaconess Hosp	Gen	Church	44	24	6	13	3		927
Grand Forks, 17 112—Grand Forks Co	Gen	Indep	85	44	18	40		2	101
Grand Forks Deaconess Hos	Gen	Indep	85	44	18	40		2	101
St Michael's Hospital	Gen	Church	55	35	15	26		2	140
Harvey 2 157—Wells Co	Gen	Church	75	42	12	26		0	402
Good Samaritan Hospital	Gen	Indep	40	6	6	0	2		345
and Sanitarium	Gen	Indep	40	6	6	0	2		345
Jamestown 8 187—Stutsman Co	Meatal	State	1 600	1 610		0	0		360
North Dakota State Hospital	Meatal	State	1 600	1 610		0	0		360
for Insane	Gen	Church	75	42	12	26	0	1	402
Trinity Hospital	Gen	Church	75	42	12	26	0	1	402
Kenmare 1 494—Ward Co	Gen	Church	45	10	5	0	4		431
Kenmare Deaconess Hosp	Gen	Church	45	10	5	0	4		431
Mandan 5 037—Morton Co	Gen	Church	30	10	0	0	8		308
Mandan Deaconess Hospital	Gen	Church	30	10	0	0	8		308
McVie 513—Nelson Co	Gen	Indep	12	7	1	0			255
Community Hospital	Gen	Indep	12	7	1	0			255
Minot 10 609—Ward Co	FENT	Indiv	15	0	1	0	2		550
McConnell's Private Hosp	FENT	Indiv	15	0	1	0	2		550
St Joseph's Hospital	Gen	Church	83	44	14	28	1		806
Trinity Hospital	Gen	Church	171	96	17	70	10	2	626
New Rockford 2 195—Eddy Co	Gen	Indiv	10	3	3	0			
Donahue Hospital	Gen	Indiv	10	3	3	0			
Northwood 971—Grand Forks Co	Gen	Indep	35	7	4	0	3		311
Northwood Deaconess Hospi	Gen	Indep	35	7	4	0	3		311
tal and Home	Gen	Indep	35	7	4	0	3		311
Portal 512—Burke Co	Gen	Indiv	11	5	3	0	2		187
Parker Hospital	Gen	Indiv	11	5	3	0	2		187
Rolette 428—Rolette Co	Gen	Indiv	15	8	5	0			
Community Hospital	Gen	Indiv	15	8	5	0			
Rugby 1,512—Pierce Co	Gen	Church	45	38	12	21	3	1	197
Good Samaritan Hospital	Gen	Church	45	38	12	21	3	1	197
San Haven—Rolette Co	TB	State	243	218		0	25		463
North Dakota State Tuber	TB	State	243	218		0	25		463
culosis Sanatorium	TB	State	243	218		0	25		463
Valley City 5 208—Barnes Co	Gen	Church	75	34	12	25	5	1	500
Mercy Hospital	Gen	Church	75	34	12	25	5	1	500
Wahpeton, 3,176—Richland Co	Gen	Part	25	0	5	0	4		306
Wahpeton Hospital	Gen	Part	25	0	5	0	4		306
Williston 5 106—Williams Co	Gen	Church	43	18	7	0	7		592
Good Samaritan Hospital	Gen	Church	43	18	7	0	7		592
Mercy Hospital	Gen	Church	75	23	10	20	4		878
Related Institutions									
Ambrose 334—Divide Co	Gen	Church	20	6	3	0	2		
Good Samaritan Hospital	Gen	Church	20	6	3	0	2		
Arvilla 348—Grand Forks Co	Inst	County	60	40		0			
Grand Forks County Hosp	Inst	County	60	40		0			
Beach 1 263—Golden Valley Co	Gen	Indep	10	2	4	0	1		85
Beach Hospital	Gen	Indep	10	2	4	0	1		85
Bismarck 11 060—Burlingame Co	Inst	State	50	16		0	0		351
North Dakota State Peni	Inst	State	50	16		0	0		351
tentiary Hospital	Inst	State	50	16		0	0		351
Elgin 605—Grant Co	Gen	Indep	8	4	2	0	2		151
Community Hospital	Gen	Indep	8	4	2	0	2		151
Fargo 28 619—Cass Co	Mater	Indiv	15	5	10	0			145
Camp Maternity Hospital	Mater	Indiv	15	5	10	0			145
Casa County Hospital	Gen	County	20	15	3	0	3		115
City Detention Hospital	Gen	County	20	15	3	0	3		115
Florence Crittenton Home	Gen	City	50	2	0	1			19
Grafton 3 136—Walsh Co	Mater	Indep	11	4	36	0	1		
North Dakota Institution for	Men	Def	700	642		0	4		69
the Feeble-minded	Men	Def	700	642		0	4		69
Grand Forks 17 112—Grand Forks Co	Gen	City	18			0			
Grand Forks City Hospital	Gen	City	18			0			
Linton 1 192—Lincoln Co	Gen	Indiv	7	3	5	0			
Wolverton Hospital	Gen	Indiv	7	3	5	0			
Lisbon 1 630—Ransom Co	Gen	Part	7	2		0	2		75
Lisbon Hospital	Gen	Part	7	2		0	2		75
Mayville 1 199—Traill Co	Gen	Indep	0	3	1	0	2		215
Union Hospital	Gen	Indep	0	3	1	0	2		215
Wahpeton 3 176—Richland Co	Gen	Indian	24	8		0	1		443
Wahpeton Indian School	Gen	Indian	24	8		0	1		443
Hospital	Gen	Indian	24	8		0	1		443
Summary for North Dakota									
Hospitals and sanatoriums	Number	Beds	Average Patients	Patients Admitted					
Related Institutions..	15	1 034	2 546	20,947					
Totals..	3	4 999	3 700	57 569					
Refused registration	3	61							

OHIO—Continued

OHIO—Continued

Related Institutions	Type of Service	Control	Beds, Rated	Occupancy	Average Patients	Basins	Students	Nurses	Registered Nurses	Patients Admitted
Bowling Green, 6 688—Wood Co	Gen	Indiv	24	2	2	0	1			71
Bowling Green Sanitarium and Hospital										
Cambridge, 14,613—Guernsey Co	Mater	Indep	15	8	10	0	1			73
Childrens and Maternity Hospital										
Chagrin Falls 2,780—Cuyahoga Co	Inst	Church	24	3		0	1			143
Cleveland Protestant Orphan Asylum	Mater	Indiv	10	2	5	0	1			50
Chardon, 1,818—Geauga Co										
Sperry Home										
Cincinnati 451,160—Hamilton Co	N&M	Indep	15	9		0	0			100
Child Guidance Home of the Jewish Hospital	Inst	Indep	100	47		0	6			214
Childrens Convalescent Home	Inst	Indep	38	13		0	2			411
Childrens Home										
Evangelina Booth Home and Hospital	Mater	Church	34	3	4	0	2			75
Hamilton County Home and Chronic Disease Hospital	Inst	County	130	64		0	8			163
Home for Incurables	Incur	Indep	64	64		0	1			
Jewish Convalescent and Foster Home	Conv	Indep	75	40	10	0	2			
Maple Knoll Hospital and Home for the Friendless	Mater	Indep	50	30	15	0	5			150
Methodist Home for Aged	Inst	Church	37	34		0				
Ridge Rest Home	N&M	Indep	24	20		0	2			62
St Francis Hospital for Incurables	Incur	Church	297	300		0	1			721
St Joseph Infant Asylum and Maternity Hospital	Mater	Church	40	2	30	0				63
St Michaels Conv Home	Conv	Indep	28	26		0				164
Salvation Army Catherine Booth Home and Maternity Hospital	Mater	Church	10	5	22	0	3			349
Cleveland 900,429—Cuyahoga Co										
Booth Memorial Maternity Home and Hospital	Mater	Church	13	7	12	0	2			117
Childrens Fresh Air Camp and Hospital	Conv	Indep	60	62		0	2			199
Emergency Hospital	Emer	Part	20	15		0	2			422
Florence Crittenton Home	Mater	Indep	15	10	13	0	1			21
Holy Cross House for Crippled and Invalid Children	Ortho	Church	12	7		0	0			18
Jewish Orphan Home	Inst	Frat	34	4		0	1			375
St Luke's Convalescent Hospital for Children	Ortho	Church	63	65		0	3			74
Columbus 290,564—Franklin Co										
Florence Crittenton Home	Mater	Indep	32	20	18	0	1			81
Franklin County Home	Inst	County	125	123	3	0	5			263
Home Sanitarium	Inst	Indiv	5	5		0	0			3
Institution for Feeble-minded	MenDef	State	2,100	2,066		0				421
Ohio Penitentiary Hospital	Inst	State	172	118		0	0			3,800
St Anthony's Hospital	Inst	Church	235	230		0	4			624
Covington 1,507—Miami Co										
Covington Hospital	Gen	Part	8	2	2	0	2			86
Dayton 200,682—Montgomery Co										
Dayton Door of Hope	Mater	Indep	16	8	0	0				
Quarantine Hospital	Iso	City	25		2	0	1			5
Veterans Admin Home	Inst	VetAd	1,100	1,050		0				6,650
Delaware 8,676—Delaware Co										
Girls Industrial School Hosp	Inst	State	32	7		0	2			242
Monnett Hospital	Gen	Indep	14	6		0	4			534
Euclid 12,751—Cuyahoga Co										
Ream Sanitarium	Conv	Indiv	25	11		0	1			37
Wright a Sanitarium	N&M	Indiv	10							
Fairfield, 1,240—Greene Co										
Station Hospital	Gen	Army	25	1		0	0			30
Granville 1,467—Licking Co										
Whisper Hall Memorial Hosp	Inst	Indep	10	4		0	2			319
Hamilton 52,176—Butler Co										
Butler County Home	TB	County	20	7		0	0			11
Ruth Hospital	Inst	Indep	8	4	5	0	0			110
Lakewood 70,509—Cuyahoga Co										
Wright's Sanitarium	N&M	Indiv	21	13		0	1			28
Lancaster 18,716—Fairfield Co										
Boys Industrial School Hosp	Inst	State	100	23		0	1			1,034
Lebanon 3,222—Warren Co										
Blair Brothers Hospital	Gen	Part	8	5	3	0	1			174
Lima 42,257—Allen Co										
Herr a Hospital	Gen	Indep	8	8	1	0	1			422
Mansfield 33,525—Richland Co										
Ohio State Reformatory	Inst	State	90	40		0	0			802
Marblehead 1,027—Ottawa Co										
Kelley Island Lima and Transport Co Hosp	Gen	Indus	6	1	1	0	1			74
Marysville 3,639—Union Co										
Ohio Reformatory for Women	Inst	State	21	8	4	0	1			800
Montpelier 3,677—Williams Co										
Wertz Hospital	Gen	Indiv	10			0	2			
Munron Falls 302—Summit Co										
Summit County Home Hosp	Inst	County	37	43	3	0	2			140
New London 1,527—Huron Co										
New London Hospital	Gen	Indep	0	2	3	0	2			70
Orient 245—Pickaway Co										
Institution for Feeble-minded	MenDef	State	2,500	2,400		0	4			175
Oxford 2,588—Butler Co										
Miami University Students Hospital and Dispensary	Inst	State	24	9		0	5			920
Sandusky 24,622—Erie Co										
Erie County Home Hospital	Chron	County	35	22		0				
Springfield 6,743—Clark Co										
Ohio Knights of Pythias Home	Inst	Frat	55	30		0	0			15
Ohio Rebeleh Hospital	Inst	Frat	75	35		0	1			400
Rickly Memorial Hospital	Inst	Frat	241	217		0	1			2,000

Key to symbols and abbreviations is on page 911

OHIO—Continued

Related Institutions	Type of Service	Control	Beds, Rated	Capacity	Average Patients	Bassinets	Student Nurses	RNs for Nursing	Patients Admitted
Springfield Eye, Ear, Nose and Throat Hospital	Gen	Indiv	6	5	2	0	1	164	
State Soldiers Home, Erie Co	Indiv	State	200	101	0	10	0	0	0
Ohio Soldiers and Sailors Home Hospital	Indiv	State	200	101	0	10	0	0	0
Union, 36,428—Seneca Co	Indiv	State	200	101	0	10	0	0	0
Kentucky Memorial Hospital	Indiv	Inst	10	16	0	2	1,342		
Toledo, 290,718—Lucas Co	Indiv	County	110	54	0	0	0	0	0
Lucas County Hosp Annex	Indiv	County	110	54	0	0	0	0	0
Municipal Hospital for Contagious Diseases	Indiv	City	41	12	2	0	4	165	
Warrensville, 1,507—Cuyahoga Co	Indiv	City	194	0	4	0	0	0	0
Cleveland City Infirmary	Indiv	City	194	0	4	0	0	0	0
West Dover 309—Cuyahoga Co	Indiv	City	31	0	0	0	0	0	0
Cedarcrest Sanitarium	Indiv	City	31	0	0	0	0	0	0
Wilberforce, 324—Greene Co	Indiv	City	11	0	0	0	0	0	0
Tawana Hosp of Wilberforce University (col)	Indiv	State	11	0	0	0	0	0	0
Woodslee, 10,742—Wayne Co	Indiv	City	20	0	0	2	25		
Hyacinth Hall	Indiv	City	20	0	0	2	25		
North, 10,707—Greene Co	Indiv	City	15	4	1	0	2		
Ohio Soldiers and Sailors Orphans Home Hospital	Indiv	State	100	20	0	5			
Youngstown, 170,002—Mahoning Co	Indiv	City	60	0	0	2	86		
Youngstown Municipal Hosp	Indiv	City	60	0	0	2	86		
Summary for Ohio									
Hospitals and sanatoriums	190	8,021							
Related institutions	77	970							
Totals	267	47,774							
Refused registration	27	60							

OKLAHOMA

Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated	Capacity	Average Patients	Bassinets	Student Nurses	RNs for Nursing	Patients Admitted
Ada 11,261—Pontotoc Co	Gen	Indiv	5	14	5	0	2	70	
Ada Hospital	Gen	Indiv	20	12	2	0	4	75	
Breco Hospital	Gen	City	22	3	2	0	1		
Altus, 54—Jackson Co	Gen	City	22	3	2	0	1		
City Hospital	Gen	City	22	3	2	0	1		
Alva, 5121—Woods Co	Gen	City	20	New	4	0	5		
Alva General Hospital	Gen	City	20	New	4	0	5		
Andarko 5,036—Caddo Co	Gen	Indiv	20	New	5	0	1		
Andarko Hospital	Gen	Indiv	20	New	5	0	1		
Ardmore, 15,741—Carter Co	Gen	Indiv	44	9	4	0	4	504	
Hardy Sanitarium	Gen	Indiv	25	10	2	0	1	142	
Von Keller Hospital	Gen	Indiv	25	10	2	0	1	142	
Hartless 14,76—Washington Co	Gen	County	0	20	10	14	0	920	
Washington County Memorial Hospital	Gen	County	0	20	10	14	0	920	
Beaver, 1,028—Beaver Co	Gen	Part	22	10	3	0	3	703	
Beaver Hospital	Gen	Part	22	10	3	0	3	703	
Blackwell, 9,521—Kay Co	Gen	Indiv	5	10	4	0	6	362	
Blackwell Hospital	Gen	Indiv	5	10	4	0	6	362	
Castle Sanatorium	Gen	Indiv	21	10	4	0	4	457	
Bristow, 6,619—Creek Co	Gen	Indiv	14	4	1	0	1	712	
Bristow General Hospital	Gen	Indiv	14	4	1	0	1	712	
Butler, 473—Custer Co	Gen	Indiv	12	0	2	0	1,250		
Sunnyside Hospital	Gen	Indiv	12	0	2	0	1,250		
Cherokee, 2,236—Alfalfa Co	Gen	Part	70	15	0	0			
Masonic Hospital	Gen	Part	70	15	0	0			
Chickasha, 14,090—Grady Co	Gen	Part	64	18	6	0	2	80	
Chickasha Hospital	Gen	Part	64	18	6	0	2	80	
Cottage Hospital	Gen	Indiv	20	11	3	0	2	207	
General Hospital	Gen	Indiv	38	5	1	0			
Claremore, 3,720—Rogers Co	Gen	Indian	0	34	8	0	3	461	
Claremore Indian Hospital	Gen	Indian	0	34	8	0	3	461	
Clinton, 7,512—Custer Co	Gen	Indiv	67	25	8	21	2	354	
Clinton Hospital	Gen	Indiv	67	25	8	21	2	354	
Western Oklahoma State Tuberculosis Sanatorium	TB	State	200	205	0	7	0	0	0
Concho, 200—Canadian Co	Gen	Indian	60	2	6	0	5	674	
Cheyenne and Arapaho Hospital	Gen	Indian	60	2	6	0	5	674	
Cordell, 2,033—Washita Co	Gen	Indiv	0	4	2	0	4	120	
Florence Hospital	Gen	Indiv	0	4	2	0	4	120	
Cushing, 9,301—Payne Co	Gen	Part	20	12	4	0	5	400	
Masonic Hospital	Gen	Part	20	12	4	0	5	400	
Duncan, 8,303—Stephens Co	Gen	Indiv	15	22	6	11	5	400	
Weeden Hospital	Gen	Indiv	15	22	6	11	5	400	
Durant, 7,461—Bryan Co	Gen	Indiv	12	4	0	2	60		
Bryan County Hospital	Gen	Indiv	12	4	0	2	60		
Elk City, 5,666—Beckham Co	Gen	Indiv	25	10	4	0			
Standifer Hospital	Gen	Indiv	25	10	4	0			
Thaddeus Hospital	Gen	Indiv	55	0	8	0	4	57	
El Reno, 9,384—Canadian Co	Gen	Indiv	25	6	3	0	2	82	
El Reno Sanitarium	Gen	Indiv	51	20	4	0	2	717	
El Reno, 23,399—Garfield Co	Gen	Church	40	20	10	16	2	1,324	
Baptist Hospital	Gen	Indiv	40	20	10	16	2	1,324	
Elk General Hospital	Gen	Indiv	40	20	10	16	2	1,324	
Elk Springs Sanitarium and Hospital	Gen	Indiv	30	10	3	9	3	677	
Elk, 2,231—Beckham Co	Gen	Indiv	20	0	2	0	2	125	
Elk Hospital	Gen	Indiv	20	0	2	0	2	125	
Elk, 3,479—Comanche Co	Gen	Army	163	88	4	0	10	3,294	
Station Hospital	Gen	Army	163	88	4	0	10	3,294	
Frederick, 4,508—Tillman Co	Gen	Part	14	6	2	0	1	164	
Frederick Clinic Hospital	Gen	Part	14	6	2	0	1	164	

OKLAHOMA—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated	Capacity	Average Patients	Bassinets	Student Nurses	RNs for Nursing	Patients Admitted
Spurgeon, Arrington and Allen Hospital and Clinic	Gen	Part	15	2	1	0	1	113	
Grandfield, 1,416—Tillman Co	Gen	Indiv	20	5	2	0	1	127	
Grandfield Hospital	Gen	Indiv	20	5	2	0	1	127	
Guthrie, 3,682—Logan Co	Gen	Indiv	37	12	7	0	4	526	
Channar Valley Wesley Hos pital	Gen	Indiv	35	19	0	0	0	0	
Duke Sanitarium	N&M	Indiv	20	5	3	0	0	0	
Park Sanitarium (col)	Gen	Indiv	20	7	1	0	2	32	
Henryetta, 7,604—Okmulgee Co	Gen	Indiv	20	0	2	0	1	20	
Henryetta Hospital	Gen	Indiv	20	0	2	0	1	20	
Keystone Hospital	Gen	Indiv	20	0	2	0	1	20	
Hobart, 4,082—Nowata Co	Gen	Part	22	8	4	0	0	35	
General Hospital	Gen	Part	22	8	4	0	0	35	
Holdenville 7,268—Hughes Co	Gen	Indep	28	10	3	0	5		
Holdenville Hospital	Gen	Indep	28	10	3	0	5		
Holls, 2,914—Harmon Co	Gen	Indiv	10	7	4	0	2	40	
Holls Hospital	Gen	Indiv	10	7	4	0	2	40	
Honolulu, 3,485—Osage Co	Gen	City	15	4	0	0	3	204	
Honolulu Hospital	Gen	City	15	4	0	0	3	204	
Lawton, 12,121—Comanche Co	Gen	Indian	95	76	15	0	10	2,177	
Nowata Indian Hospital	Gen	Indian	95	76	15	0	10	2,177	
Southwestern Hospital	Gen	Part	26	5	4	0	3	260	
Mangum 4,806—Greer Co	Gen	Part	50	19	6	10	3	530	
Border McGregor Hospital and Clinic	Gen	Part	50	19	6	10	3	530	
Marlow, 3,054—Stephens Co	Gen	Indiv	20	0	6				
Weeden Hospital	Gen	Indiv	20	0	6				
Maud, 4,26—Seminole Co	Gen	Indiv	12	13	3	0	2	470	
Maud Hospital	Gen	Indiv	12	13	3	0	2	470	
McAlester 11,504—Pittsburg Co	Gen	Frat	55	18	6	13	882		
Albert Pike Hospital	Gen	Church	18	9	4	0	404		
St Mary's Infirmary	Gen	Church	18	9	4	0	404		
Miami, 8,064—Ottawa Co	Gen	Church	50	17	6	0	5	934	
Miami Baptist Hospital	Gen	Church	50	17	6	0	5	934	
Muskogee, 3,026—Muskogee Co	Gen	Indep	30	10	0	2	230		
Muskogee Provident Hospi tal (col)	Gen	Indep	30	10	0	2	230		
Oklahoma Baptist Hospital	Gen	Church	125	27	12	0	12	1,125	
Veterans Admin Hospital	Gen	Vet Ad	440	362	0	0	3	583	
Norman 9,607—Cleveland Co	Gen	Part	2,675	2,250	0	2	1,500		
Central Oklahoma State Hos pital	Mental	State	2,675	2,250	0	2	1,500		
Nowata, 3,531—Nowata Co	Gen	Indiv	14	6	2	0	1	168	
Nowata Hospital	Gen	Indiv	14	6	2	0	1	168	
Okemah, 4,002—Okfuskee Co	Gen	Indiv	12	3	0	1	475		
Okemah Hospital	Gen	Indiv	12	3	0	1	475		
Oklahoma City, 185,359—Oklahoma Co	Gen	Indiv	60	20	0	2	13		
Farm Sanatorium	TB	Indiv	60	20	0	2	13		
Great Western Hospital (col)	Gen	Part	26	5	2	0	2	740	
Oklahoma City General Hos pital	Gen	Indep	85	60	12	41	4	2,696	
Polyclinic Hospital	Gen	Indiv	73	30	4	0	1,128		
Reconstruction Hospital and McBride Clinic	Ortho	Part	29	11	0	3	272		
Relator Hospital	Gen	Indiv	71	20	8	0	4	520	
St Anthony Hospital	Gen	Church	200	150	40	78	26	5,065	
State University Hosp and Crippled Children's Hos pital	Gen	State	440	445	22	122	42	6,346	
Wesley Hospital	Gen	Indep	150	72	25	46	8	3,499	
Okmulgee, 17,097—Okmulgee Co	Gen	City	70	15	0	18	5	909	
Okmulgee City Hospital	Gen	City	70	15	0	18	5	909	
Okmulgee Colored City Hos pital	Gen	City	20	4	1	0	1	80	
Pauls Valley, 4,235—Garvin Co	Gen	Part	13	3	2	0	0	82	
Indsey Johnson Hospital	Gen	Part	13	3	2	0	0	82	
Pawhuska, 5,931—Osage Co	Gen	City	31	8	4	0	5	437	
Pawhuska Municipal Hosp	Gen	City	31	8	4	0	5	437	
Pawnee, 2,562—Pawnee Co	Gen	Indian	50	29	0	0	5	729	
Pawnee Ponea Hospital	Gen	Indian	50	29	0	0	5	729	
Pleher, 7,773—Ottawa Co	Gen	Indiv	40	3	3	0	1	82	
American Hospital	Gen	Part	20	0	2	0	1	200	
Pleher Hospital	Gen	Part	20	0	2	0	1	200	
Ponea City, 16,136—Kay Co	Gen	Indiv	18	5	2	0	5	270	
Grand Avenue General Hosp	Gen	Church	50	70	12	25	1	1,160	
Ponea City Hospital	Gen	Church	50	70	12	25	1	1,160	
Ryan, 1,253—Jefferson Co	Gen	Indiv	10	8	2	0	0	102	
Ryan Hospital	Gen	Indiv	10	8	2	0	0	102	
Sand Springs, 9,674—Tulsa Co	Gen	Indiv	40	3	2	0	5	163	
Home Hospital	Gen	Indiv	40	3	2	0	5	163	
Sapulpa, 10,533—Creek Co	Gen	City	17	5	2	0			
Sapulpa City Hospital	Gen	City	17	5	2	0			
Savre, 3,157—Beckham Co	Gen	Indiv	17	4	3	0			
Thaddeus Hospital	Gen	Indiv	17	4	3	0			
Seminole, 11,450—Seminole Co	Gen	Indep	20	10	3	0	4	776	
Harber Hospital	Gen	Indep	20	10	3	0	4	776	
Shattuck, 1,460—Ellis Co	Gen	Indiv	44	30	0	0	2	800	
Shattuck Hospital	Gen	Indiv	44	30	0	0	2	800	
Shawnee, 23,283—Pottawatomie Co	Gen	Part	30	16	7	0	3	803	
A C H Hospital	Gen	Part	30	16	7	0	3	803	
Shawnee Indian Sanatorium	TB	Indian	150	145	0	7	187		
Shawnee Municipal Hospital	Gen	City	75	18	10	0	10	960	
Sulphur, 4,242—Murray Co	TB	State	106	106	0	8	608		
Soldiers Tuberculosis Sanat	Gen	Part	22	8	2	0	1	189	
Sulphur Sanitarium	Gen	Part	22	8	2	0	1	189	
Supply, 230—Woodward Co	Mental	State	1,200	1,116	0	1	300		
Western Oklahoma Hospital	Mental	State	1,200	1,116	0	1	300		
Tallhanna, 1,032—Le Flore Co	TB	Indian	60	60	0	4	157		
Choctaw Chickasaw Sanat	TB	Indian	60	60	0	4	157		
Eastern Oklahoma State Tu berculosis Sanatorium	TB	State	253	180	0	3	581		
Thomas, 1,256—Custer Co	Gen	Indiv	20	6	3	2	0	236	
Thomas Hospital	Gen	Indiv	20	6	3	2	0	236	
Tonkawa, 3,311—Kay Co	Gen	Indiv	20	1	4	0	2	72	
Tonkawa Hospital	Gen	Indiv	20	1	4	0	2	72	

OREGON—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated	Capacity	Average Patients	Basinsets	Student Nurses	RNs for Nursing	Patients Admitted
Grants Pass 4 600—Josephine Co	Gen	County	32	18	0	0			
Josephine General Hospital	Gen	County	32	18	0	0			
Hood River, 2,757—Hood River Co	Gen	Indep	30	10	4	0	8		501
Hood River Hospital	Gen	Indep	30	10	4	0	8		501
Klamath Agency, 163—Klamath Co	Gen	Indian	25	0	2	0	3		301
Klamath Reservation Hosp	Gen	Indian	25	0	2	0	3		301
Klamath Falls, 10 033—Klamath Co	Gen	Indep	47	35	12	0	12		
Hillsdale Hospital	Gen	Indiv	60	30	14	0	12		
Klamath Valley Hospital	Gen	Indiv	60	30	14	0	12		
La Grande 8 040—Union Co	Gen	Indep	50	16	5	0	6		587
Grande Ronde Hospital	Gen	Indep	50	16	5	0	6		587
Lakeview, 1 793—Lake Co	Gen	Indiv	10	4	4	0	2		
Lakeview Public Hospital	Gen	Indiv	10	4	4	0	2		
Lebanon 1 801—Linn Co	Gen	Part	12	5	3	0	2		205
Lebanon General Hospital	Gen	Part	12	5	3	0	2		205
McMinnville 2 017—Yamhill Co	Gen	Indep	28	14	0	0	5		487
McMinnville Hospital	Gen	Indep	28	14	0	0	5		487
Medford 11,007—Jackson Co	Gen	Indep	30	14	0	0	7		558
Community Hospital	Gen	Church	70	39	7	23	6	1	1 181
Sacred Heart Hospital	Gen	Church	70	39	7	23	6	1	1 181
Millwaukie 1 707—Clackamas Co	TB	Indep	78	44	0	0			142
Portland Open Air Sanat	TB	Indep	78	44	0	0			142
Myrtle Point 1,302—Coos Co	Gen	Part	21	8	6	0	3		236
Must and Wilson Hospital	Gen	Part	21	8	6	0	3		236
Newberg 2 951—Yamhill Co	Gen	Indiv	11	1	4	0	1		43
Dr Wendt's Hospital	Gen	Indiv	11	1	4	0	1		43
North Bend 4 012—Coos Co	Gen	Indep	65	25	10	0	4		892
Kelzer Brothers Hospital	Gen	Church	50	20	5	0	5		500
Mersey Hospital	Gen	Church	50	20	5	0	5		500
Ontario 1 041—Malheur Co	Gen	Church	35	25	6	0	7		590
Holy Rosary Hospital	Gen	Church	35	25	6	0	7		590
Oregon City 5 761—Clackamas Co	Gen	Indep	52	33	8	0	14		072
Oregon City Hospital	Gen	Indep	52	33	8	0	14		072
Pendleton 6 621—Umatilla Co	Mental	State	1,300	1 130		0	4		279
Eastern Oregon State Hosp	Mental	State	1,300	1 130		0	4		279
St Anthony's Hospital	Gen	Church	70	29	12	14	5		955
Portland 301 815—Multnomah Co	Gen	Church	70	29	12	14	5		955
Doernbecher Memorial Hospital	Gen	Church	70	29	12	14	5		955
Emanuel Hospital	Gen	Church	217	169	66	95	23		5,414
Good Samaritan Hosp	Gen	Church	306	175	24	147	8		0 410
Juvenile Hospital for Girls	Mater	Indep	45	5	5	0	1		153
Morningside Hospital	Mental	Fed	808	290	0	0	0		67
Mountain View Sanitarium	N & M	Indep	20	9	0	0			
Multnomah Hospital	Gen	County	250	257	20	01	23		3 052
Portland Conv Hospital	Conv	Indiv	25	13	0	0	7		154
Portland Eye Ear Nose and Throat Hospital	EENT	Indiv	37	7	0	0	8		1 015
Portland General Hospital	Gen	Indep	50	22	25	0	12		792
Portland Medical Hospital	Gen	Indep	64	32	0	0	14		677
Portland Sanitarium and Hospital	Gen	Church	112	89	24	35	12		3 503
Dr Robert C Coffey Clinic and Hospital	Gen	Indiv	110	51	6	0	25		055
St Vincent's Hospital	Gen	Church	306	279	30	185	28		8 022
Shriners Hospital for Crippled Children	Ortho	Frat	50	58	0	10	0		211
Veterans Admin Hospital	Ortho	VetAd	337	296	0	42	2,894		
Waverleigh Sanatorium	N & M	Part	12	8	0	0			
Roseburg 4 362—Douglas Co	Gen	Church	25	25	0	0	4		480
Mersey Hospital	Gen	Church	25	25	0	0	4		480
St Helens 3,994—Columbia Co	Gen	Indiv	10	7	0	0			447
St Helens General Hospital	Gen	Indiv	10	7	0	0			447
Salem 20 266—Marion Co	Mental	State	1 950	2 090		0	2		797
Oregon State Hospital	Mental	State	1 950	2 090		0	2		797
Oregon State Tuberc Hosp	TB	State	250	211		0	11		125
Salem General Hospital	Gen	Indep	64	33	14	10	0	1	436
Silverton 2 462—Marion Co	Gen	Indep	20	8	5	0	3		270
Silverton Hospital	Gen	Indep	20	8	5	0	3		270
The Dalles 5 883—Wasco Co	TB	State	138	99	0	0	12		84
Eastern Oregon Tuberculosis Hospital	TB	State	138	99	0	0	12		84
Mild Columbia Hospital	Gen	Part	21	12	0	0	4		410
The Dalles Hospital	Gen	Indep	65	33	10				
Tillamook 2 549—Tillamook Co	Gen	Indiv	35	0	6	0	4		349
Charlton Hospital	Gen	Indiv	35	0	6	0	4		349
Tillamook General Hospital	Gen	Indiv	35	0	6	0	4		349
Toledo 2 137—Lincoln Co	Gen	Indep	20	11	5	0	3		401
Lincoln Hospital	Gen	Indep	20	11	5	0	3		401
Troutdale 327—Multnomah Co	Gen	Indiv	9	3	0	2			214
Multnomah County Tuberculosis Pavilion	TB	County	37	37	0	4			100
Related Institutions									
Bend 8 848—Deschutes Co	Indus	Indus	30	5	0	3			271
Lumbermen's Hospital	Indus	Indus	30	5	0	3			271
Clatskanie 625—Marion Co	Inst	Indian	42	22	0	2			1 145
Salem Indian School Hosp	Inst	Indian	42	22	0	2			1 145
Corvallis 7 583—Benton Co	Inst	State	15	5	0	3			402
Oregon State Agricultural College Hospital	Inst	State	15	5	0	3			402
Jacksonville 706—Jackson Co	Gen	Indiv	15	6	3	0			21
Jacksonville Sanitarium	Gen	Indiv	15	6	3	0			21
Klamath Falls 16 035—Klamath Co	Gen	Indiv	7	New	3	0	1		
Souls Sanitarium	Gen	Indiv	7	New	3	0	1		
Mill City 1,114—Marion Co	Gen	Indiv	8	2	1	0	1		49
Mill City Hospital	Gen	Indiv	8	2	1	0	1		49
Portland 301 815—Multnomah Co	Gen	Indiv	8	2	1	0	1		49
E Henry Wemme White Shield	Mater	Indep	40	2	24	0	1		60
1-olution Ho pital	Iso	City	70	12	0	0	4		52
Salvation Army White Shield	Mater	Church	39	5	5	0	2		121
Home	Conv	Indep	15	5	0	0			129
Woman's Convalescent Home	Conv	Indep	15	5	0	0			129
Salem 20 266—Marion Co	Gen	Indep	15	5	0	0			129
Oregon State Institution for Feeble-minded	Men	Def State	1 000	845		0	0		

Hospitals and Sanatoriums

Hospitals and Sanatoriums	Type of Service	Control	Beds	Rated Capacity	Average Patients	Inpatients	Student Nurses	RNs for Nursing	Patients Admitted
Albany 5—Lima Co									
Albany General Hospital	Gen	Indep	54	15	10	0	7	560	
Ashland 44—Jackson Co									
Community Hospital	Gen	City	20	7	2	0	3	273	
Astoria 10, 19—Clatsop Co									
Columbia Hospital	Gen	Indep	50	32	12	0	12	1,558	
St Mary's Hospital	Gen	Church	114	41	20	30	9	1,493	
Baker 28—Baker Co									
Baker County Protestant Ho pital	Gen	Church	2	14	6	0	3	407	
St Elizabeth's Hospital	Gen	Church	40	29	14	14	6	1,019	
Bandon 116—Coos Co									
Dep Memorial Ho pital	Gen	Indiv	10	2	2	0	1	70	
Bend 8—Deschutes Co									
St Charles Hospital	Gen	Church	25	13	6	0	5	578	
Burns 6—Harney Co									
Valley View Ho pital	Gen	Indep	27	9	6	0	1	371	
Corvallis 7—Benton Co									
Corvallis Central Hospital	Gen	Indep	40	15	6	0			
Dalla 29—Tillamook Co									
Dalla Hospital	Gen	Indep	16	7	4	0	2	265	
Enterprise 1—Wallowa Co									
Enterprise Ho pital	Gen	Indep	1	3	2	0	1	23	
Lincoln 1—Lane Co									
Eugene Ho pital and Clinic	Gen	Indep	55	22	5	0	10	544	
Leitch Christian Ho pital	Gen	Indep	75	2	15	0	24	1,453	
Leitch Creek 1—Washington Co									
Clyde Ho pital	Gen	Indiv	20	1	5	0			

Key to symbols and abbreviations is on page 911

OREGON—Continued

Related Institutions	Type of Service	Control	Beds, Rated	Capacity	Average Patients	Basinsets	Student Nurses	RNs for Nursing	Patients Admitted
Oregon State Penitentiary	Inst	State	50	8	0	0	0	0	
Oregon State School for the Deaf	Inst	State	12	1	0	1	26		
Wallowa, 749—Wallowa Co	Gen	Indiv	9	4	2	0			
Wallowa Hospital	Gen	Indiv	9	4	2	0			
Woodburn, 1,675—Marion Co	Inst	State	9	2	0	1			
Oregon State Training School	Inst	State	9	2	0	1			
Summary for Oregon									
Hospitals and sanatoriums	Number	Beds	Average Patients	Patients Admitted					
Related Institutions	15	7,785	6,179	62,738					
Totals	81	9,140	7,109	65,849					
Refused registration	7	245							

PENNSYLVANIA

Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated	Capacity	Average Patients	Basinsets	Student Nurses	RNs for Nursing	Patients Admitted
Abington, 821—Montgomery Co	Gen	Indep	222	137	33	94	11	3,599	
Abington Mem Hosp *000	Gen	Indep	222	137	33	94	11	3,599	
Allentown, 92,545—I chick Co	Gen	Indep	300	220	25	139		0,380	
Allentown Hospital*000	Gen	Indep	300	220	25	139		0,380	
Allentown State Hosp *000	Mental	State	1,466	1,445	39	25		515	
Baer Hospital	Gen	Indiv	20	6	10	0	3	175	
Sacred Heart Hospital*000	Gen	Church	20	133	20	65	15	3,010	
Albion, 362—Union Co	Gen	Indep	120	105		0	8	700	
Devitt's Camp for Tuber	TB	Indep	120	105		0	8	700	
Altoona, 82,054—Blair Co	Gen	Indep	162	107	18	8	10	2,620	
Altoona Hospital*000	Gen	Indep	162	107	18	8	10	2,620	
Mercy Hospital*000	Gen	Indep	121	68	14	49		2,200	
Amble, 3,944—Montgomery Co	N & M	Indiv	50	25		0	2	44	
Dufur Hospital	N & M	Indiv	14	12		0	1	3	
Ardmore, 10,075—Montgomery Co	N & M	Indiv	14	12		0	1	3	
Wood Ten Sanatorium	N & M	Indiv	14	12		0	1	3	
Ashland, 7,164—Schuylkill Co	Gen	State	226	134	15	34	25	4,071	
Ashland State Hospital	Gen	State	226	134	15	34	25	4,071	
Beaver Falls, 17,147—Beaver Co	Gen	Church	65	40	10	22	7	1,032	
Providence Hospital	Gen	Church	65	40	10	22	7	1,032	
Bedford, 2,075—Bedford Co	Gen	Indiv	14	7	2	0	3	211	
Thimble's Hospital	Gen	Indiv	14	7	2	0	3	211	
Bellefonte, 4,804—Centre Co	Gen	Indep	64	2	12	23	5	1,170	
Centre County Hospital	Gen	Indep	64	2	12	23	5	1,170	
Bellevue, 10,252—Allegheny Co	Gen	Indep	104	60	14	30	6	1,003	
Suburban General Hosp	Gen	Indep	104	60	14	30	6	1,003	
Berwick, 12,660—Columbia Co	Gen	Indep	60	29	10	17	3	751	
Berwick Hospital	Gen	Indep	60	29	10	17	3	751	
Bethlehem, 57,892—Northampton Co	Gen	Indep	186	124	20	89	17	4,040	
St Luke's Hospital*000	Gen	Indep	186	124	20	89	17	4,040	
Bloomsburg, 9,003—Columbia Co	Gen	Indep	110	48	10	44	1	1,127	
Bloomsburg Hospital	Gen	Indep	110	48	10	44	1	1,127	
Blossburg, 1,686—Toga Co	Gen	State	80	36	6	0	15	1,378	
Blossburg State Hospital	Gen	State	80	36	6	0	15	1,378	
Braddock, 19,329—Allegheny Co	Gen	Indep	120	69	16	40	7	2,193	
Braddock General Hosp	Gen	Indep	120	69	16	40	7	2,193	
Bradford, 19,706—McKean Co	Gen	Indep	107	62	23	10	11	1,615	
Bradford Hospital	Gen	Indep	107	62	23	10	11	1,615	
Brookville, 4,387—Jefferson Co	Gen	Indep	30	19	4	15	3	550	
Brookville Hospital	Gen	Indep	30	19	4	15	3	550	
Brownsville, 2,809—Fayette Co	Gen	Indep	60	52	10	19	11	1,377	
Brownsville General Hosp	Gen	Indep	60	52	10	19	11	1,377	
Bryn Mawr, 3,056—Montgomery Co	Gen	Indep	230	150	24			4,208	
Bryn Mawr Hospital*000	Gen	Indep	230	150	24			4,208	
Butler, 23,668—Butler Co	Gen	Indep	85	52	10	28	6	1,479	
Butler County Memorial Hos	Gen	Indep	85	52	10	28	6	1,479	
Canonsburg, 12,558—Washington Co	Gen	Indep	56	32	10	23		1,049	
Canonsburg General Hosp	Gen	Indep	56	32	10	23		1,049	
Carbondale, 20,061—Lackawanna Co	Gen	Indep	65	26	10	0	3	849	
Carbondale General Hosp	Gen	Indep	65	26	10	0	3	849	
St Joseph's Hospital	Gen	Church	108	50	10	16	6	1,574	
Carlisle, 12,596—Cumberland Co	Gen	Indep	77	30	18	0	17	1,111	
Carlisle Hospital	Gen	Indep	77	30	18	0	17	1,111	
Station Hospital	Gen	Army	38	10	1	0	0	724	
Chambersburg, 13,788—Franklin Co	Gen	Indep	85	41	15	21	2	1,300	
Chambersburg Hospital	Gen	Indep	85	41	15	21	2	1,300	
Chester, 59,164—Delaware Co	Gen	Indep	250	110	35		8	3,732	
Chester Hospital*000	Gen	Indep	250	110	35		8	3,732	
J Lewis Crozer Home for Incurables and Homeopathic Hospital	Gen	Indep	85	16	10	3	3	544	
Mercy Hospital	Gen	Indiv	20	0	4	0	2	408	
Clarks Summit, 2,004—Lackawanna Co	Mental	City	80	797		10	2	163	
Hillside Home and Hospital for Mental Diseases	Mental	City	80	797		10	2	163	
Clearfield, 9,221—Clearfield Co	Gen	Indep	108	75	18	42	12	2,693	
Clearfield Hospital	Gen	Indep	108	75	18	42	12	2,693	
Clifton Heights, 5,057—Delaware Co	N & M	Indep	60	45		0	7	32	
Burn Brae Hospital	N & M	Indiv	12	7		0			
Eyre Sanitarium	N & M	Indiv	12	7		0			
Coaldale, 6,921—Schuylkill Co	Gen	State	85	73	9	0		937	
Coaldale State Hospital	Gen	State	85	73	9	0		937	
Coatesville, 14,582—Chester Co	Gen	Indep	97	50	14	27	10	1,805	
Coatesville Hospital*000	Gen	Indep	97	50	14	27	10	1,805	
Veterans Admin Hospital	Mental	Vet Ad	800	486		0	38	213	
Columbia, 11,349—Lancaster Co	Gen	Indep	65	16	10	0	7	547	
Columbia Hospital	Gen	Indep	65	16	10	0	7	547	
Colver, 2,060—Cambria Co	Gen	Indus	18	6	4	0	3	233	
Colver Hospital	Gen	Indus	18	6	4	0	3	233	
Confluence, 689—Somerset Co	Gen	Indiv	15	6	3	0	1	142	
Frantz Hospital	Gen	Indiv	15	6	3	0	1	142	

PENNSYLVANIA—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated	Capacity	Average Patients	Basinsets	Student Nurses	RNs for Nursing	Patients Admitted
Connellsville, 13,200—Fayette Co									
Connellsville State Hosp	Gen	State	91	40	15	0	18	1,486	
Corry, 7,152—Erie Co									
Corry Hospital	Gen	Indep	40	20	8	0	10	663	
Coudersport, 2,740—Potter Co									
Coudersport General Hosp	Gen	Indep	14	10	5	0	3		
Cresson, 2,317—Cambria Co									
Pennsylvania State Sanat for Tuberculosis No 2+	TB	State	840	721		19	5	808	
Danville, 7,185—Montour Co									
Danville State Hospital*000	Mental	State	1,803	1,833		71	36	438	
Geo F Gelsinger Memorial Hospital*000	Gen	Indep	180	145	15	44	14	4,823	
Devon, 764—Chester Co									
Alleyd Hospital	N & M	Indiv	21	10		0			
Dixmont, 1,200—Allegheny Co									
Dixmont Hosp for Insane	N & M	Indep	1,000	1,167		14	7	187	
Drexel Hill, 1,119—Delaware Co									
Delaware County Hospital	Gen	Indep	56	45	14	0	19	1,922	
Du Bois, 11,595—Clearfield Co									
Du Bois Hospital	Gen	Church	50	24	6	19		512	
Maple Avenue Hospital	Gen	Indep	84	31	6	33	8	1,323	
Englewood, 184—Montgomery Co									
Englewood Sanatorium*000	TB	Indep	200	188		20		246	
Easton, 34,405—Northampton Co									
Betts' Private Hospital	Gen	Indiv	42	12	10	0	6	624	
Easton Hospital*000	Gen	Indep	199	119	20	80	22	4,063	
Easton Sanitarium	N & M	Indiv	30	16		0	2	47	
East Stroudsburg, 6,099—Monroe Co									
General Hospital	Gen	County	50	23	10	0	6	817	
Elizabethtown, 3,940—Lancaster Co									
Hosp for Crippled Children	Ortho	State	100	94		0	19	120	
Philadelphia Freemasons' Me									
morial Hospital	Gen	Frat	165	136		0	3	485	
Ellwood City, 12,323—Lawrence Co									
Ellwood City Hospital	Gen	Indep	55	20	8	0	6	563	
Erie, 116,997—Erie Co									
Hamor Hospital*000	Gen	Indep	185	154	25	64	14	6,041	
Rose Memorial Private Hos									
pital and Clinic	Gen	Part	15	9		0	2	314	
St Vincent's Hospital*000	Gen	Church	180	179	35	88	23	5,638	
Zem Zem Hospital for Crip									
pled Children	Ortho	Frat	50	40		0	2	47	
Everett, 1,574—Bedford Co									
Everett Hospital	Gen	Indiv	17	12	5	0	3	303	
Franklin, 10,254—Venango Co									
Franklin Hospital	Gen	Indep	47	17	10	0	10	675	
Gettysburg, 5,584—Adams Co									
Annie M Warner Hospital	Gen	Indep	34	23	6	0	12	800	
Gladys, 1,551—Erie Co									
Erie County Home, Tubereu	TB	County	33	30		0	1	57	
losis Annex	TB	County	33	30		0	1	57	
Gladwyne, 1,236—Montgomery Co									
Gladwyne Colony	N & M	Indiv	80	72		0		82	
Greensburg, 16,005—Westmoreland Co									
Westmoreland Hospital*000	Gen	Indep	103	87	12	46	10	2,566	
Greenville, 5,628—Mercer Co									
Greenville Hospital	Gen	Indep	51	12	12	0	8	529	
Grove City, 6,156—Mercer Co									
Grove City Hospital	Gen	Indep	30	9	5	0	3	370	
Hamburg, 3,637—Berks Co									
Hamburg State Sanat *0	TB	State	334	460		12	13	527	
Hanover, 11,805—York Co									
Hanover General Hospital	Gen	Indep	55	24	10	0	13	760	
Harrisburg, 80,339—Dauphin Co									
Harrisburg Hospital*000	Gen	Indep	214	140	32	110	15	4,468	
Harrisburg Polyclinic Hos									
pital*000	Gen	Indep	150	91	35	61	11	3,233	
Harrisburg State Hospital+	Mental	State	1,799	1,751		0	7	322	
Keystone Hospital	Gen	Indiv	27	16	5	0	12	402	
Hazleton, 36,765—Luzerne Co									
Corrigan Maternity Hosp	Mater	Indiv	16	8	16	0	3	305	
Hazleton State Hospital*000	Gen	State	145	125	9	50	10	4,861	
Holidaysburg, 5,969—Blair Co									
Blair County Hospital for the Insane	Mental	County	350	270		0	0	137	
Homestead, 20,141—Allegheny Co									
Homestead Hospital*000	Gen	Indep	98	55	20	36	5	1,776	
Honesdale, 5,490—Wayne Co									
Wayne County Memorial Hospital	Gen	Indep	28	13	5	0	5	633	
Huntingdon, 7,558—Huntingdon Co									
J O Blair Memorial Hosp	Gen	Indep	68	50	10	30		1,463	
Indiana, 5,569—Indiana Co									
Indiana Hospital*000	Gen	Indep	135	99	15	50	10	2,893	
Jersey Shore, 5,781—Lycoming Co									
Jersey Shore Hospital	Gen	Indep	20	5	4	4	1	250	
Sanford Hospital	Gen	Indiv	17	12	6	6	1	325	
Johnstown, 66,893—Cambria Co									
Conemaugh Valley Memorial Hospital*000	Gen	Indep	290	186	30	102	10	6,347	
Lee Homeopathic Hospital	Gen	Indep	50	31	10	0	5	926	
Mendenhall Maternity Hosp	Mater	Indiv	16	10	12	6	1	230	
Mercy Hospital*000	Gen	Church	88	61	14	50	6	1,710	
Kane, 6,232—McKean Co									
Community Hospital	Gen	Indep	53	19	12	0	8	713	
Kane Summlt Hospital	Gen	Indep	35	14	0	0	6	464	
Kingston, 21,600—Luzerne Co									
Nesbitt Memorial Hospital	Gen	Indep	116	62	12	55	10	2,161	
Kittanning, 7,808—Armstrong Co									
Kittanning General Hospital	Gen	Indep	35	20	5	0	7	750	
Lancaster, 59,949—Lancaster Co									
Lancaster Gen Hosp*000	Gen	Indep	241	141	32	88	19	4,707	
Rossmore Sanatorium	TB	Cy & Co	57	53		0	6	86	
St Joseph's Hospital	Gen	Church	189	97	26	76	9	3,091	
Latrobe, 10,644—Westmoreland Co									
Latrobe Hospital*000	Gen	Indep	65	40	10	24	6	1,477	

PENNSYLVANIA—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated	Capacity	Average Patients	Basinets	Student Nurses	R.N.s for Nursing	Patients Admitted
Lebanon 25 561—Lebanon Co	Gen	Indep	90	48	10	22	0	1,511	
Good Samaritan Hospital	Gen	Indep	25	13	0	0	8	483	
Lebanon Sanatorium									
Lewistown 3,308—Union Co	Gen	Church	20	12	2	0	3	208	
Evangelical Hospital									
Lewistown 13 357—Mifflin Co	Gen	Indep	80	51	7	2	6	1,487	
Lewistown Hospital									
Lock Haven 0 608—Clinton Co	Gen	Indep	80	40	10	23	5	1,271	
Lock Haven Hospital	Gen	Indiv	25	8	0	0	0	491	
Teah Private Hospital									
Lock No 4—618—Washington Co	Gen	Indep	60	42	18	0	10	1,036	
Charleroi Monessen Hosp									
Marview 47—Allegheny Co									
Pittsburgh City Home and Hospital	Mental	City	750	699	12	45	19	1,822	
McKeesport 54 632—Allegheny Co	Gen	Indep	223	159	40	70	13	4,277	
McKeesport Hospital									
McKees Rocks, 18 116—Allegheny Co	Gen	Indep	53	33	17	21	8	1,200	
Ohio Valley Gen Hosp									
Meadville 16 698—Crawford Co	Gen	Indep	75	40	14	32	7	1,103	
Meadville City Hospital	Gen	Indep	107	48	13	30	8	1,548	
Spencer Hospital									
Media 5,372—Delaware Co	N & M	Indiv	10	0	0	0	0	203	
Brookwood Farm	Gen	Indiv	20	15	4	0	1	203	
Media Hospital									
Mercer 2,120—Mercer Co	Gen	Indep	50	27	3	10	0	1,223	
Mercer Cottage Hospital	N & M	Part	45	30	18	4	83		
Mercer Sanatorium									
Meyersdale 3,000—Somerset Co	Gen	Indiv	10	4	2	0	2	182	
Hazel McGilvery Hospital	Gen	Indiv	15	3	2	0	1	151	
Meyersdale Hospital									
Middleburg 1 024—Snyder Co	Gen	Indiv	10	0	2	0	5	260	
Joseph L. Potter Hospital									
Moone 4 641—Beaver Co	TB	County	63	63	0	5	90		
Beaver County Sanatorium									
Monessen 20 263—Westmoreland Co	EEAT	Indiv	12	3	0	3	388		
Gumhill Hospital									
Moongahela 8,615—Washington Co	Gen	Indep	66	30	0	0	5	716	
Memorial Hospital									
Mt Pleasant, 5,820—Westmoreland Co	Gen	Indep	00	30	10	24	7	1,107	
Henry Clay Frick Memorial Hospital									
Muncy 2,413—Lycoming Co	Gen	Indep	19	7	7	0	2	430	
Muncy Valley Private Hosp									
Nanticoke 26 043—Luzerne Co	Gen	State	120	107	10	55	0	3,030	
Nanticoke State Hospital									
New Brighton 9 950—Beaver Co	Gen	Indep	70	30	10	28	1,077		
Beaver Valley Gen Hosp									
New Castle 48 674—Lawrence Co	Gen	Indep	154	60	24	50	15	2,232	
Jameson Mem Hospital	Gen	Church	100	63	20	44	14	1,901	
New Castle Hospital									
New Kensington 10 702—Westmoreland Co	Gen	Indep	88	66	12	40	4	2,732	
Citizens General Hospital									
Norristown 30 833—Montgomery Co	Gen	Indep	125	84	20	41	8	2,580	
Montgomery Hospital									
Norristown Stott Hospital	Mental	State	3,414	3,115	24	30	539		
Riverview Hospital	Gen	Indep	40	17	11	0	0	719	
Norhampton 9,829—Northampton Co	Gen	Indiv	25	10	5	10	2	489	
Hart Hospital									
Oil City 25 075—Venango Co	TB	Indep	50	23	0	2	50		
Crandview Sanatorium									
Oil City General Hospital	Gen	Indep	120	64	22	40	1,091		
Palmerston 7 078—Carbon Co	Gen	Indep	50	41	7	10	5	608	
Lamberton Hospital									
Leaksville 3 915—Lackawanna Co	Gen	Indep	64	48	8	29	4	1,373	
Mid Valley Hospital									
Philadelphia 1,000,001—Philadelphia Co	Gen	Indep	39	20	2	0	10	759	
Americo Hospital for Diseases of the Stomach	Gen	Indep	45	27	0	0	630		
American Oncologic Hosp	Sk & Ca	Indep	72	23	23	0	7	1,751	
Anderson Hospital	Gen	Indep	15	9	0	18	395		
Babies Hospital	Chil	Indep	80	40	30	0	22	1,568	
Broad Street Hospital	Gen	Indep	01	09	23	45	10	2,209	
Chestnut Hill Hospital	Card	Indep	48	45	0	2	92		
Children's Heart Hospital	Chil	Indep	136	93	52	14	2,074		
Children's Hospital	N & M	Indep	40	32	0	20	122		
Falmouth Farm	Gen	Indep	119	102	23	64	3,240		
Frankford Hospital									
Frederick Douglass Memorial Hospital (col) 000	Gen	Indep	57	10	5	13	4	502	
Friends Hospital	N & M	Indep	100	157	23	35	120		
Garrison Hospital	(Included in Temple University Hosp)								
Germanstown Dispensary and Hospital	Gen	Indep	310	218	50	103	28	6,230	
Graduate Hosp of the Univ of Pennsylvania	Gen	Indep	470	203	18	116	56	8,485	
Hahnemann Medical College Hospital	Gen	Indep	510	408	77	211	24	10,980	
Home for Consumptives	TB	Church	104	93	0	0	100		
Hospital of the Protestant Episcopal Church	Gen	Church	400	233	120	24	5,983		
Hospital of the University of Pennsylvania	Gen	State	507	340	32	160	40	8,327	
Hospital of the Woman's Medical College	Gen	Indep	100	87	21	45	12	2,400	
Institute of the Pennsylv	N & M	Indep	60	30	0	12	146		
Isaiah Hospital	Cancer	Indep	72	43	0	17	574		
Jefferson Medical College Hospital	Gen	Indep	651	524	57	230	12	114	
Johns Hospital	Gen	Indep	240	240	70	120	37	6,004	
John Price Mem Hosp	Gen	Indep	60	32	5	34	700		
Kennett Hospital for Women	Mater	Indep	70	44	30	31	10	1,042	
Lackawanna Hospital	Gen	Indep	200	100	30	100	16	4,100	
Mary J. Driscoll Home and Children's Hospital	Chil	Church	47	25	4	0	0	0	

PENNSYLVANIA—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated	Capacity	Average Patients	Basinets	Student Nurses	R.N.s for Nursing	Patients Admitted
Memorial Hospital	Gen	Indep	100	70	15	36	10	2,446	
Mercy Hospital (col) 000	Gen	Indep	94	70	10	47	12	1,593	
Methodist Episcopal Hospital	Gen	Church	200	103	47	131	21	5,385	
Metropolitan Hospital	Gen	Indep	20	13	10	0	7	902	
Misericordia Hospital	Gen	Church	250	146	30	110	18	4,802	
Mt Sinai Hospital	Gen	Indep	316	214	55	13	0,204		
National Stomach Hospital	Gen	Indep	46	15	10	0	6	634	
Northeastern Hospital	Gen	Indep	90	72	12	40	8	2,006	
Northern Liberties Hosp	Gen	Indep	55	40	11	0	16	1,840	
Northwestern General Hosp	Gen	Indep	56	31	8	0	3	1,190	
Pennsylvania Hospital	Gen	Indep	430	325	130	06	85	0,068	
Pennsylvania Hospital Dept for Mental and Nervous Diseases	N & M	Indep	280	194	54	34	260		
Philadelphia General Hospital	Gen	City	2,450	1,939	60	287	104	22	401
Philadelphia Hospital for Contagious Diseases	Iso	City	1,100	430	15	04	4,800		
Philadelphia Hospital for Mental Diseases	Mental	City	5,613	4,875	0	36	1,588		
Philadelphia Orthopaedic Hospital and Infirmary for Nervous Diseases	Neur	Indep	144	07	28	3	715		
Presbyterian Hospital	Gen	Church	383	190	42	127	25	4,367	
Preston Retreat	Mater	Indep	50	32	35	0	2	518	
Rush Hospital for Consumption and Allied Diseases	TB	Indep	178	110	0	7	527		
St Agnes Hospital	Gen	Church	800	175	40	104	13	4,530	
St Christopher's Hospital for Children	Chil	Indep	75	50	39	9	2,205		
St Joseph's Hospital	Gen	Church	103	80	28	81	14	2,878	
St Luke's and Children's Home Hospitals	Gen	Indep	242	101	58	70	12	3,241	
St Mary's Hospital	Gen	Church	210	89	43	91	12	3,222	
St Vincent's Hospital for Women and Children	Gen	Church	238	181	29	25	2	1,360	
Shrivers Hospital for Crippled Children	Ortho	Frat	100	108	0	21	277		
Stetson Hospital	Gen	Indep	65	34	15	19	1,247		
Temple University Hospital	Gen	Indep	899	275	51	120	32	8,765	
U S Naval Hospital	Gen	Navy	760	593	0	40	4,520		
Wills Hospital	Eye	Indep	200	01	0	19	2,760		
Woman's Hospital	Gen	Indep	111	64	39	53	1	2,037	
Women's Homeopathic Hospital	Gen	Indep	160	89	40	45	10	3,324	
Phillipsburg, 3 600—Centre Co	Gen	Indiv	20	5	6	0	4	191	
Dr. McGirk Sanatorium	Gen	State	96	90	12	37	0	2,161	
Phillipsburg State Hosp									
Phoenixville 12 020—Chester Co	Gen	Indep	58	30	9	21	2	720	
Phoenixville Hospital									
Pittsburgh 809 817—Allegheny Co	Gen	Indep	879	202	26	129	29	0,700	
Allegheny Gen Hosp	Gen	Indep	40	14	5				
Belvedere General Hospital	Gen	Indep	196	116	103	12	2,600		
Children's Hospital	Chil	Indep	301	327	106	20	60	5,570	
Elizabeth Steel Magee Hospital	Gen	Indep	50	30	5	0	14	3,140	
Eye and Ear Hospital	FENT	Indep	12	10	0	2	12		
Fairview Sanatorium	N & M	Indep	20	9	12	10	2	810	
Haddon Maternity Hospital	Mater	Indep	265	184	45	85	5	1,176	
Homeopathic Medical and Surgical Hospital and Dispensary	Gen	Indep	290	279	0	20	321		
Leach Farm Sanatorium	TB	City	027	512	48	260	26	9,591	
Mercy Hospital	Gen	Church	104	145	31	59	39	4,860	
Montefiore Hospital	Gen	Indep	200	79	0	10	1,162		
Municipal Hospital for Contagious Diseases	Iso	City	128	89	24	33	2,427		
Passavant Hospital	Gen	Church	178	141	23	76	14	3,410	
Pittsburgh Hospital	Gen	Indep	181	120	5	76	10	3,350	
Presbyterian Hospital	Gen	Church	83	45	132	20	0	320	
Rosella Foundling and Maternity Hospital	Mater	Indep	400	381	37	170	25	0,343	
St Francis Hospital	Gen	Church	180	121	22	72	12	3,107	
St Francis Hospital Psychopathic Unit	(Included in St Francis Hospital)								
St John's General Hospital	Gen	Church	126	82	12	50	14	2,238	
St Joseph's Hospital	Gen	Church	131	76	21	35	9	2,206	
St Margaret Memorial Hospital	Gen	Indep	210	141	15	71	10	4,283	
South Side Hospital	Gen	Church	150	150	0	9	262		
Tuberculosis League Hospital	TB	Indep	02	02	0	11	601		
U S Marine Hospital	Gen	USPHS	600	371	51	140	82	10,276	
Western Pennsylvania Hospital	Gen	Indep	100	02	18	40	8	2,561	
Pottstown 18 246—Luzerne Co	Gen	Indep	52	15	10	0			
Pottstown Hospital	Gen	Indep	60	36	10	20	1,362		
Pottstown 21 300—Schuylkill Co	Gen	Indiv	75	24	12	0	16	1,178	
Lemo B. Warner Hospital	Gen	Indep	128	24	10	0	7	976	
A. C. Milliken Hospital	Gen	Indep	58	87	12	50	7	2,571	
Pottsville Hospital									
Punxsutawney 9,206—Jefferson Co	Gen	Indep	120	60	10	0	15	1,503	
Adrian Hospital									
Quakertown 4,800—Buck Co	Gen	Indep	50	19	10	0	8	606	

PENNSYLVANIA—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated	Capacity	Average Patients	Nurses	Student Nurses	RNs for Nursing	Patients Admitted
Windber, 9,207—Somerset Co Windber Hospital*00	Gen	Indep	08	70	4	43	13	1,011	
Woodville, 610—Allegheny Co Allegheny County Home and Hospital for the Insane	Mental	County	3,442	3,300		0	4	1,770	
York, 55-254—York Co West Side Sanitarium York Hospital*000	Gen Gen	Indlv Indep	50 165	26 115	8 25	0 71	3 15	928 3,186	
Related Institutions									
Bellevue, 10,252—Allegheny Co Salvation Army Woman's Home and Hospital	Mater	Church	10	5	10	0	1	139	
Broomall, 125—Delaware Co Convalescent Hospital	Conv	Frat	30	23		0	3	275	
Bryn Mawr, 1,056—Montgomery Co Bryn Mawr College Infirmary	Inst	Indep	16	4		0	4	28	
Cambria Springs, 1,667—Crawford Co Logan's Hospital	Gen	Indlv	10	5	3	0	3	210	
Carlisle, 12,596—Cumberland Co Cumberland County Home	Inst	County	27	25		0		30	
Chambersburg, 13,788—Franklin Co Wilson College for Women Infirmary	Inst	Indep	10	2		0	1		
Darby, 9,899—Delaware Co St Francis Country House for Conv and St Francis Hall for Incurables	ConvIncur	Church	75	42		0		369	
Devon, 364—Chester Co Favorable Farm Perfect Rest	N&M N&M	Indlv Indlv	12 10	2		0 0	1		
Ebensburg, 3,063—Cambria Co Cambria County Hospital	Inst	County	87	71	5	0	1	240	
Gwyn, 162—Delaware Co Gwyn Training School	MenDef	Indep	1,045	1,025		0	3	30	
Greensburg, 147—Chester Co Chester County Hospital for Insane	Mental	County	350	385		0	0	90	
Emsworth (Pittsburgh P O), 2,709—Allegheny Co Orphan Asylum of the Holy Family	Inst	Church	20			0	1		
Erk, 11,967—Erie Co Erieview Hospital	Iso	City	82	1		0	0	140	
Louise Home	TB	Indep	16	14		0	1	53	
Gibsonia, 18—Allegheny Co St Barnabas Free Home	Inst	Church	108	107		0	2	104	
Jarmansville, 786—Allegheny Co Jarmansville Conv Home	Conv	Indep	45	45	30	0	4	300	
Huntingdon, 7,558—Huntingdon Co Pennsylvania Industrial Re- formatory	Inst	State	36	15		0	0	440	
Johnstown, 66,993—Cambria Co Municipal Hospital	Iso	City	75	5		0	1	65	
Salis Private Hospital	Alcoh	Indlv	12	2		0		60	
Lancaster, 59,949—Lancaster Co Lancaster County Hospital and Hospital for Insane	Mental	County	600	340	1	0	3	100	
Landsdowne, 9,542—Delaware Co Sanatorium School	Ortho	Indlv	33	21		0	1		
Laurelton, 327—Union Co Laurelton State Village	MenDef	State	656	662		0	2	32	
Louisville, 400—Perry Co Tressler Orphans Home	Inst	Church	40	1		0		45	
Mercer, 2,125—Mercer Co Mercer County Home and Hospital	Mental	County	220	199		0		48	
Middletown, 6,085—Dauphin Co Odd Fellows Home	Inst	Frat	50	45		0	2	96	
Morgantza,—Washington Co Pennsylvania Training School	Inst	State	11	9		0	2	1,230	
Nazareth, 5,505—Northampton Co Northampton County Alms house	Inst	County	65	90		0	2	42	
New Brighton, 9,950—Beaver Co Beaver County Children's Home	Inst	Indep	10	1		0	0	11	
New Wilmington, 907—Lawrence Co Overlook Sanitarium	Conv	Indlv	40	30		0	2	200	
North East, 3,670—Erie Co St Barnabas' House by the Lake	Incur	Church	30	30		0	1	41	
Packbourne, 32—Chester Co James C Smith Mem Home	Conv	Church	23	10		0	1	441	
Pennsylvania Epileptic Hos- pital and Colony Farm	Epil	Indep	110	105		0	1	19	
Lyphiant, 10,743—Lackawanna Co Blakely Home	N&M	County	161	141		0	2		
Pennhurst,—Chester Co Pennhurst State School	MenDef	State	1,624	1,446		0	9	336	
Philadelphia, 1,950,961—Philadelphia Co Belle Vista Sanatorium	Conv	Indlv	80	40		0	6		
Belmont Hospital	Mater	Church	10	2	10	0	1	201	
Brown's Farm	Chll	City	60	55	20	0	1	120	
Chester Avenue Private Hos- pital	Gen	Indlv	9	4	0	0	3	301	
Eastern State Penitentiary Hospital	Inst	State	81	54		0	0	1,688	
Florence Crittenton Home	Mater	Indep	15	9	15	0	1	45	
Hebrew Sheltering Home	Inst	Indep	50	20	8	0	3	75	
Home of the Merciful Savior for Crippled Children	Ortho	Indep	62	62		0	1	62	
House of the Good Shep- herd (col)	Inst	Church	75	55		0			
Kenwood Sanitarium	Conv	Indlv	25	14		0			
Logan Private Hospital	Conv	Indlv	10	5		0	2	16	

Key to symbols and abbreviations is on page 911

PENNSYLVANIA—Continued

Related Institutions	Type of Service	Control	Beds Rated	Capacity	Average Patients	Basinets	Student Nurses	R.N.s for Nursing	Patients Admitted
Lutheran Orphanage and Home for Aged	Inst	Church	20	12	0	2			
Pennsylvania Institution for the Deaf	Inst	Indep	20	5	0				304
Philadelphia County Prison Hospital	Inst	County	68	44	0	0			161
Philadelphia Home for Incurables	Incur	Indep	204	204	0	3			28
Rosenbach Farms	Conv	Indep	23	14	0	1			70
Sharon Hall	Conv	Indiv	40	31	0	2			94
Widener Memorial Industrial Training School for Crippled Children	Ortho	Indep	100	100	0	6			18
Pittsburgh 669 517—Allegheny Co									
J. M. Gusky Orphanage and Home	Inst	Indep	10	2	0				24
Industrial Home for Crippled Children	Ortho	Indep	80	77	0	1			14
Jewish Home for the Aged	Inst	Indep	20	20	0	2			28
Western Penitentiary Hosp	Inst	State	20	20	0	0			462
Park 3,337—Venango Co	MenDef	State	2,700	2,689	0	2			166
Park State School	Inst	Indep	29	7	0	5			400
Pottstown 19 430—Montgomery Co									
Hill School Infirmary	Inst	Indep	29	7	0	5			400
Retreat 31—Luzerne Co									
Retreat Home and Hospital for Chronic Diseases	Inst	County	130	100	0	3			427
Rochester 7 726—Beaver Co									
Passavant Memorial Home for the Care of Epileptics	Church		200	110	0				11
Schuylkill Haven 6 514—Schuylkill Co									
Schuylkill County Hospital	Inst	County	100	100	0	2			
Scranton 143 433—Lackawanna Co									
Municipal Hospital for Contagious Diseases	Iso	City	50	6	0	4			144
Waukena Hospital	Mater	Part	10	3	0	3			100
Sellinggrove 2 707—Snyder Co									
Sellinggrove State Colony for Epileptics	Epile	State	404	268	0				34
Shillington 4 401—Berks Co									
Berks County Almshouse Hospital	Inst	County	112	90	0	3			100
Somerset 4 320—Somerset Co									
Somerset County Home and Hospital	Mental	County	534	401	0	1			42
State College 4 450—Centre Co									
Pennsylvania State College Health Service Infirmary	Inst	State	20	6	0	7			493
Troy 1 100—Bradford Co									
Bradford County Home	Inst	County	120	118	0	0			45
Martha Lloyd School	MenDef	Indiv	41	40	0	1			5
Tyrone 6 042—Blair Co									
Methodist Home for Aged	Inst	Church	11	8	0	2			
Union City 3 788—Erie Co									
Union Hospital	Gen	Indep	10	5	0	3			186
Valencia 308—Butler Co									
Lillian Convalescent Rest	Conv	Indep	55	45	0	4			267
Weatherly 2 531—Carbon Co									
Middle Creek Field Poor District Almshouse	Inst	County	00	42	0	1			124
White Haven 1 537—Luzerne Co									
Chlor Moat Sanatorium	TB	Indiv	14		0	2			8
Fernell Sanatorium	TB	Part	20	18	0	2			27
Sunnyrest Sanatorium	TB	Indiv	30	10	0	2			37
Wilkes Barre 50 620—Luzerne Co									
Contagious Disease Hospital	Iso	City	15	4	0	2			90
Willow Grove 2 000—Montgomery Co									
Willow Crest for Conv	Conv	Indep	70	70	4	0	3		824
Wyncote 200—Montgomery Co									
Crest View Sanatorium	N & M	Indiv	10	1	0	0			
Summary for Pennsylvania									
Hospitals and sanatoriums	20		67,667		62,800		578,017		
Related institutions	0		11,741		10,186		12,540		
Totals	20		79,408		72,986		590,557		
Refused registration	21		309						

RHODE ISLAND

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated	Capacity	Average Patients	Basinets	Student Nurses	R.N.s for Nursing	Patients Admitted
Central Full 2 000—Providence Co									
Notre Dame Hospital	Gen	Indep	50	23	7	0			
East Providence 29 000—Providence Co									
Anna Pundtton Bradley Home	N & M	Indep	50	40	0	14			64
Hillgrove 1 000—Kent Co									
St. Joseph's Sanit. Annex	TB	Church	50	47	0	3			30
Howard 2 000—Providence Co									
State Hospital for Mental Disease	Mental	State	2,161	2,100	29	10			560
State Infirmary	Gen	State	808	802	40	0	4		280
Newport 1 000—Newport Co									
Newport Hospital	Gen	Indep	14	94	21	62	9		1,894
Station Hospital	Gen	Army	20	13	0	0			341
U.S. Naval Hospital	Gen	Navy	420	200	0	17	1		94
Westerly 1 000—Providence Co									
Westerly Hospital	Gen	Indep	100	100	30	62	21		1,157
Westerly 2 000—Providence Co									
Westerly Hospital	Surg	Indiv	11		0				160
Westerly 1 000—Providence Co	N & M	Indep	174	142	0	20			144

RHODE ISLAND—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated	Capacity	Average Patients	Basinets	Student Nurses	R.N.s for Nursing	Patients Admitted
Charles V. Chapin Hosp	TB Iso	City	265	196	0	75	29		2,731
Homeopathic Hospital	Gen	Indep	166	112	34	70	43		3,604
Hope Hospital	Gen	Indep	38	19	0	12			808
Jana Brown Memorial Hosp	Gen	Indep	70	24	0	14			680
John W. Keefe Surgery	Surg	Indep	25	6	0				
Miriam Hospital	Gen	Indep	63	36	14	0	10		1,307
Providence Lying In Hospital	Mater	Indep	155	69	105	0	40		2,621
Rhoda Island Hospital	Gen	Indep	600	423	208	20	8		8,486
St. Joseph's Hospital	Gen	Church	278	201	40	10	23		3,670
Wakefield, 2 716—Washington Co									
South County Hospital	Gen	Indep	30	18	10	0	8		534
Wallum Lake 75—Providence Co									
Rhoda Island State Sanat	TB	State	433	380	0	6			437
Westerly 10 997—Washington Co									
Margaret Edward Anderson Hospital	Gen	Indiv	25	15	8	0	4		807
Westerly Hospital	Gen	Indep	61	26	12	17	5		604
Woonsocket 49 376—Providence Co									
Woonsocket Hospital	Gen	Indep	128	71	22	43	18		2,730

Related Institutions

Bristol 11 943—Bristol Co									
Rhoda Island Soldiers Home	Inst	State	51	42	0				44
Howard, 2 250—Providence Co									
Rhoda Island State Prison	Inst	State	20	15	0	1			424
Rockanisset School for Boys	Inst	State	9	4	0	1			
Howe 79—Kent Co									
Lakeside Home and Prevent	TB	Indep	100	54	0	2			317
La Fayette 700—Washington Co									
Water School	MenDef	State	500	502	0				104
Providence 2 2 851—Providence Co									
Heath Sanatorium	Conv	Indiv	20	14	0				50
Heath Sanatorium Annex	Conv	Indiv	14	12	0				30
St. Elizabeth Home for Incurables	Incur	Church	44	42	0				11

Summary for Rhode Island

	Number	Beds	Average Patients	Patients Admitted
Hospitals and sanatoriums	20	0,111	5,320	38,107
Related institutions	8	825	745	980
Totals	38	7,939	6,071	39,087
Refused registration	1	60		

SOUTH CAROLINA

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated	Capacity	Average Patients	Basinets	Student Nurses	R.N.s for Nursing	Patients Admitted
Abbeville 4 414—Abbeville Co									
Abbeville Co Mem Hosp	Gen	Indep	23	8	2	0	2		168
Alben 6 033—Alben Co									
Alben County Hospital	Gen	County	20	22	2	0	5		760
Anderson 14 983—Anderson Co									
Anderson County Hosp	Gen	Indep	70	48	10	27	5		1,510
St. Mary's Hospital	Gen	Indiv	30	New	2	10	3		
Bennettsville 3 607—Marlboro Co									
Marlboro Co Gen Hosp	Gen	County	34	10	6	0	4		564
Camden 5 183—Kershaw Co									
Camden Hospital	Gen	Indep	50	20	8	14	2		936
Charleston 62 265—Charleston Co									
Baker Sanatorium	Gen	Indiv	50	28	12	24	3		1,077
Roper Hospital	Gen	Indep	270	240	90	100	15		5,410
St. Francis Xavier Infirmary	Gen	Church	50	22	10	20	0		608
Chester 5 528—Chester Co									
Pryor Hospital	Gen	Indep	60	10	6	14	1		512
Clifton 5 643—Laurens Co									
Dr. Hays Hospital	Gen	Indiv	15	7	2	0	2		218
Columbia 51 551—Richland Co									
Columbia Hospital	Gen	County	120	87	12	62	7		3,101
Good Samaritan Hospital (col)	Gen	Indep	60	30	3	17	2		765
South Carolina Baptist Hospital	Gen	Church	100	70	6				
South Carolina State Hospital	Mental	State	3,378	2,309	27	28	1		1,008
Veterans Admin Hospital	Gen	Vet Ad	304	New	0	20			
Waverley Sanitarium	N & M	Indep	20	18	0	4			207
Waverley Fraternal Hospital (col)	Gen	Frat	56	28	6	20	2		617
Conway 3 011—Horry Co									
Conway Hospital	Gen	Indep	30	11	6	11	3		742
Florence 14 774—Florence Co									
Florence-Darlington Tubercu	TB	County	29	34	0	5			169
McLeod Infirmary	Gen	Indep	135	74	8	60			2,767
Anderson Memorial Hosp	Gen	Indep	50	20	6	20	4		1,416
Caffney 6 527—Cherokee Co									
Cherokee Hospital	Gen	Indep	35	10	0				2
Greenville 29 104—Greenville Co									
Greenville City Hospital	Gen	City	114	70	11	40	7		2,502
Greenville Co Tuberc Hosp	TB	County	60	63	0	8			146
Dr. Jervy's Private Hosp	EF & T	Indiv	10	3	0	3			196
St. Francis Hospital	Gen	Church	20	New	8	0	10		
Shriners Hospital for Crippled Children	Ortho	Frat	60	60	0				300
Dr. Tyler's Hospital	Surg	Indiv	10	1	0				300
Working Men's Club Society Hospital (col)	Gen	Frat	20	10	1	0	2		208

Key to symbols and abbreviations is on page 911

SOUTH CAROLINA—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Greenwood, 11,020—Greenwood Co	Gen	Church	21	11	2	0	4	242	
Brewer Hospital (col)	Gen	Indep	57	15	1	11	2	738	
Greenwood City Hospital	Gen	Indiv	20	2	2	0	1	50	
Lake City, 1,942—Florence Co	Gen	Indiv	25	12	2				
Lynch Infirmary	Gen	Indiv	24	10	6	2	2		
Lancaster, 1,545—Lancaster Co	Gen	Indiv	51	New	6	0	7		
Lancaster Hospital	Gen	Indiv	41	11	0	0	504		
Leesville, 1,140—Lexington Co	Gen	Indep	15	21	2	13	602		
Leesville Infirmary	Gen	Indiv	50	17	0	5	120		
Monks Corner, 623—Berkeley Co	Gen, TB	Indep	51	10	5				
Berkeley County Hosp	Gen	Army	201	127	7	0	8	1,002	
Moultrieville, 515—Charleston Co	Gen	Indiv	70	9	0	3	44		
Stanton Hospital	Gen	Indiv	35	20	2				
Mullins, 3,138—Marion Co	Gen	Indiv	70	16	4	10	2	470	
Mullins Hospital	Gen	Indiv	35	22	4	22	2	994	
Navy Yard, 1,025—Charleston Co	Gen	County	270	142	20	52	10	3,510	
Pinelawn Sanatorium	TB	County	270	200	0	11	210		
Newberry, 7,298—Newberry Co	Gen	Indiv	26	22	0	1	51		
Newberry County Hospital	Gen	Indiv	92	10	5	20	1,164		
Orangeburg, 8,776—Orangeburg Co	Gen	Indiv	20	10	2	0			
Orangeburg Hospital	Gen	Indiv	33	15	6	0	4	1,169	
Parris Island, 905—Beaufort Co	Gen	Indiv	33	15	6	0	4	1,169	
U. S. Naval Hospital	Gen	Indiv	33	15	6	0	4	1,169	
Ridge, 10,946—Bendle Co	Gen	Indiv	33	15	6	0	4	1,169	
Ridge, 10,946—Bendle Co	Gen	Indiv	33	15	6	0	4	1,169	
Rock Hill, 11,322—York Co	Gen	Indiv	33	15	6	0	4	1,169	
Jennell Infirmary	Gen	Indiv	33	15	6	0	4	1,169	
St. Mile, 150—Pickens Co	Gen	Indiv	33	15	6	0	4	1,169	
Dr. Peek's Hospital	Gen	Indiv	33	15	6	0	4	1,169	
Spartanburg, 2,722—Spartanburg Co	Gen	Indiv	33	15	6	0	4	1,169	
Mary Black Memorial Hosp	Gen	Indiv	33	15	6	0	4	1,169	
Spartanburg General Hospital	Gen	Indiv	33	15	6	0	4	1,169	
State Park,—Richland Co	Gen	Indiv	33	15	6	0	4	1,169	
Palmetto Sanatorium	Gen	Indiv	33	15	6	0	4	1,169	
South Carolina Sanat	Gen	Indiv	33	15	6	0	4	1,169	
Sumter, 11,780—Sumter Co	Gen	Indiv	33	15	6	0	4	1,169	
Camp Allee	Gen	Indiv	33	15	6	0	4	1,169	
Tuomey Hospital	Gen	Indiv	33	15	6	0	4	1,169	
Union, 7,418—Union Co	Gen	Indiv	33	15	6	0	4	1,169	
Wallace Thompson Hospital	Gen	Indiv	33	15	6	0	4	1,169	
Walterboro, 2,782—Colleton Co	Gen	Indiv	33	15	6	0	4	1,169	
Charles Es Dorn Hospital	Gen	Indiv	33	15	6	0	4	1,169	
Related Institutions									
Cedar Spring, 162—Spartanburg Co	Gen	Indiv	33	15	6	0	4	1,169	
Infirmary of the South Caro	Gen	Indiv	33	15	6	0	4	1,169	
lina School for Deaf and Blind	Inst	State	24	4	0				
Charleston, 62,265—Charleston Co	Inst	City	25	7	0	0	273		
Charleston Orphan House	Inst	State	34	5	0				
Citadel Hospital	Inst	State	34	5	0				
Clinton, 5,647—Laurens Co	Inst	Church	38	5	0	1	650		
Lesh Infirmary of Thornwell	Inst	Church	38	5	0	1	650		
Orphanage	Inst	Church	38	5	0	1	650		
State Training School	Inst	Church	38	5	0	1	650		
Columbia, 51,581—Richland Co	Inst	Church	38	5	0	1	650		
South Carolina University	Inst	Church	38	5	0	1	650		
Infirmary	Inst	Church	38	5	0	1	650		
Georgetown, 5,082—Georgetown Co	Inst	Church	38	5	0	1	650		
Morence Williams Hospital	Inst	Church	38	5	0	1	650		
(col)	Inst	Church	38	5	0	1	650		
Greenville, 29,154—Greenville Co	Inst	Church	38	5	0	1	650		
ebb Memorial Infirmary	Inst	Church	38	5	0	1	650		
tanburg, 28,723—Spartanburg Co	Inst	Church	38	5	0	1	650		
offard Infirmary	Inst	Church	38	5	0	1	650		
meriville, 2,579—Dorchester Co	Inst	Church	38	5	0	1	650		
thir B. Lee Hospital	Inst	Church	38	5	0	1	650		
(col)	Inst	Church	38	5	0	1	650		
minerville Infirmary	Inst	Church	38	5	0	1	650		
druff, 3,175—Spartanburg Co	Inst	Church	38	5	0	1	650		
orkman Memorial Hospital	Inst	Church	38	5	0	1	650		
Summary for South Carolina									
Hospitals and sanatoriums	Number	Beds	Average Patients	Patients Admitted					
Related Institutions	51	6,550	5,239	44,599					
	10	797	557	1,747					
Totals	64	7,347	5,796	46,346					
Refused registration	1	22							

SOUTH DAKOTA

Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Aberdeen, 10,465—Brown Co	Gen	Indep	65	14	0	0	8	580	
Aberdeen Good Samaritan Hospital	Gen	Church	125	62	2	45	12	2,870	
St. Luke's Hospital	Gen	Indep	30	6	6	0	3	218	
Belle Fourche, 2,082—Butte Co	Gen	Indep	10	1	1	0	1	81	
John Burns Memorial Hosp	Gen	Indep	10	1	1	0	1	81	
Bowdle, 777—Edmunds Co	Gen	Indep	10	1	1	0	1	81	
Community Hospital	Gen	Indep	10	1	1	0	1	81	
Brookings, 4,376—Brookings Co	Gen	Church	24	10	8	0	5	513	
Wesley Hospital	Gen	Church	24	10	8	0	5	513	
Cannova, 364—Miner Co	Gen	Indep	12	5	4	0	2	198	
Cannova Hospital	Gen	Indep	12	5	4	0	2	198	
Chamberlain, 1,364—Brule Co	Gen	Indep	70	25	8	14	4	750	
Chamberlain Sanitarium and Hospital	Gen	Indep	70	25	8	14	4	750	
Cheyenne Agency, 121—Dewey Co	Gen	Indiv	40	27	3	0			
Cheyenne River Indian Hos	Gen	Indiv	40	27	3	0			
pital	Gen	Indiv	40	27	3	0			
Deadwood, 2,550—Lawrence Co	Gen	Church	50	16	6	16	5	721	
St. Joseph's Hospital	Gen	Church	50	16	6	16	5	721	

SOUTH DAKOTA—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Dell Rapids, 1,657—Minnehaha Co									
Dell Rapids Hospital	Gen	Indep	30	10	6	6	0		301
Edgemont, 1,103—Fall River Co									
Edgemont Hospital	Gen	Indiv	10	4	2	0	1		112
Fureka, 1,308—McPherson Co									
Fureka Community Hosp	Gen	Indep	23	6	5	0	4		234
Faulkton, 730—Faulk Co									
Faulk County Hospital	Gen	County	17	7	4	0	3		437
Flandreau, 1,034—Moody Co									
Flandreau Hospital	Gen	Indiv	10	5	1	0	1		110
Ft Meade,—Meade Co									
Station Hospital	Gen	Army	43	18		0			411
Ft Thompson, 65—Buffalo Co									
Marcoe Indian Hospital	Gen	Indian	28	27	5	0	5		405
Garrington, 655—Minnehaha Co									
De Vail Hospital	Gen	Indiv	10	2	2	0	1		68
Hot Springs, 2,908—Fall River Co									
Black Hills Hospital	Gen	Indiv	20	9	8	0	4		228
Lutheran Sanatorium and Hospital	Gen	Church	30	11	4	0	6		320
Our Lady of Lourdes Hos pital and Sanitarium	Gen	Church	75	18	6	18	6		666
Huron 10,946—Bendle Co									
Sprague Hospital	Gen	Indep	54	21	8	13	3		1,077
Lead 5,733—Lawrence Co									
Homestake Hospital	Gen	Indus	25	10	5	0	7		401
Leimon, 1,508—Pierlins Co									
Leimon Hospital	Gen	Indiv	24	16	6	0	2		589
Madison 4,289—Lake Co									
New Madison Hospital	Gen	Indep	50	21	10	9	2		834
Millbank 2,389—Grant Co									
St Bernard's Providence Hospital	Gen	Church	25	7	5	0	3		248
Miller 1,447—Hand Co									
Miller Hospital and Clinic	Gen	Indiv	18	5	5	0	3		200
Minnehah, 10,942—Davison Co									
Methodist State Hospital	Gen	Church	100	40	12	20			1,227
St Joseph's Hospital	Gen	Church	85	50	15	33	4		1,519
Wobridge, 3,464—Walworth Co									
Lowe's Hospital	Gen	Indiv	20	7	6	0	3		271
Wobridge Hospital	Gen	Indep	30	11	7	0	4		446
New Underwood 311—Pennington Co									
New Underwood Community Hospital	Gen	Indep	13	4	0	0	2		238
Parkston, 1,336—Hutchinson Co									
Dr J L Waldner's Hospital	Gen	Indiv	12	5		0			
Pierre, 3,649—Hughes Co									
St Mary's Hospital	Gen	Church	75	42	8	23	8		2,062
Pine Ridge, 618—Shannon Co									
Pine Ridge Hospital	Gen	Indian	54	36	11	0	5		1,153
Rapid City, 10,404—Pennington Co									
Black Hills Methodist Hos pital	Gen	Church	53	32	7	21	3		1,112
St John's McNamara Hos pital	Gen	Church	75	23	12	24	2		1,483
Redfield, 2,664—Spink Co									
Baldwin Community Hosp	Gen	City	15	3	5	0	2		171
Rosebud, 120—Todd Co									
Rosebud Agency Indian Hos pital	Gen	Indian	36	33	6	0	5		1,074
Sanator, 10—Custer Co									
South Dakota State Sana torium for Tuberculosis	TB	State	102	170		0	10		140
Sloux Falls, 33,362—Minnehaha Co									
McKenna Hospital	Gen	Church	92	57	18	45	7		2,062
Moe Hospital and Clinic	Gen	Indiv	50	15	10	22	4		876
Sloux Valley Hospital	Gen	Indep	125	60	25	50	12		2,362
Volga, 604—Brookings Co									
Volga Hospital	Gen	Indep	14	7	6	0			276
Watertown 10,214—Codington Co									
Bartron Hospital	Gen	Indep	60	33	6	21	4		676
Luther Hospital	Gen	Church	60	26	10	19	5		700
Webster, 1,805—Day Co									
Peabody Hospital	Gen	Indiv	50	30	7	16	3		741
Winnier, 2,220—Tripp Co									
Wilson Hospital	Gen	Indiv	10	4	2	0	1		132
Winnier General Hospital	Gen	Indiv	12	5	5	0	1		192
Yankton, 6,072—Yankton Co									
Sacred Heart Hospital	Gen	Church	130	63	20	30			1,674
Yankton State Hospital	Mental	State	1,637	1,480		0			343

SOUTH DAKOTA—Continued

Related Institutions	Type of Service	Control	Beds Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Redfield, 2,664—Spink Co State School and Home for Feeble-minded	MenDef	State	600	332	0	1	70		
Tyndall 1,287—Bon Homme Co Tyndall Hospital	Gen	Indlv	0	3	0				
Waggoner, 1,420—Charles Mix Co Duggan Hospital	Gen	Indlv	0	3	2	0	1		
Pinard Hospital	Gen	Indlv	8	3	2	0	1		110
Summary for South Dakota	Number	Beds	Average Patients	Patients Admitted					
Hospitals and sanatoriums	30	3,910	2,601	33,514					
Related Institutions	15	1,500	1,274	2,864					
Totals	45	5,410	3,875	36,378					
Refused registration	3	130							

TENNESSEE

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Atheos 1,383—Me Minn Co Force Hospital	Gen	Part	10	4	4	0	2		
Holloy 1,217—Hardeman Co Western State Hospital	Mental	State	1,700	1,100	0	15	5.0		
Brownsville 3,904—Hoywood Co Haywood County Mem Hospital	Gen	Indep	32	10	6	10	0	546	
Centerville, 943—Hickman Co Edwards' Hospital	Gen	Indlv	12		2	0			
Chattanooga 119,783—Hamilton Co Baroness Erlanger Hospital	Gen	Cy&Co	220	171	26	80	8	5,530	
Children's Hospital	Child	Maternity	73	0	11	0	11	1,270	
Newell and Newell Sanit Co	Gen	Port	50	4	2	4	1,243		
Pine Breeze Sanatorium	TB	Indep	225	210	0	7	203		
Walden Hospital (col)	Gen	Indlv	25	4	2				
Clarksville 9,242—Montgomery Co Clarksville Home Infirmary	Gen	Indlv	25		2	0	4	490	
Clarksville Hospital	Gen	Indep	40	15	6	1	2	674	
Clarksville 1,130—Bradley Co Speck Hospital	Gen	Indep	30		2	0	1	233	
Columbia 7,582—Maury Co Kings Daughters Hospital	Gen	Indep	0	20	5	16	2	932	
Cookeville 3,738—Putnam Co Cookeville City Hospital	Gen	City	20	6					
Dayton 2,600—Rhea Co Broyles Private Hospital	Gen	Indlv	12	4	1	0	1	104	
Dyersburg 8,733—Dyer Co Baird Brewer Gen Hosp	Gen	Indep	30	9	12	4	632		
Elizabethton 8,093—Carter Co St Elizabeth General Hosp	Gen	Indep	25	1	6	0	3	335	
Cookeville 3,544—Greene Co Cookeville Sanatorium and Hospital	Gen	Indep	60	17	2	10	4	722	
Fakoma Hospital and Sanatorium	Gen	Indep	40		6	21	4	800	
Humboldt 4,017—Gibson Co Oursler Clinic	Gen	Indlv	10		3	0	3	303	
Jackson 22,172—Madison Co Crook Sanatorium	Gen	Indep	25	13	12	8	1	440	
Memorial Hospital	Gen	Indep	30	14	9	0	335		
Webb Williamson Hospital	Gen	Indep	31	10	0	0	0	728	
Johnson City 25,080—Washington Co Appalachian Hospital	Gen	Indep	30	27	6	12	3	1,219	
Campbell's Eye, Ear, Nose and Throat Hospital	FFNT	Indlv	10	3	0	2	1,300		
Jones Eye, Ear, Nose and Throat Hospital	FFNT	Indlv	17	10	0	3	320		
Hubert 11,914—Sullivan Co Hubert General Hospital	Gen	Indep	16	8	2	0	1	821	
Marshall Clinic and Hospital	Gen	Indlv	20	8	0	0	3	530	
Knoxville 10,502—Knox Co Beverly Hills Sanatorium	TB	Indep	10	104	0	1	204		
Dr. H. F. Christenbury Eye, Ear, Nose and Throat Infirmary	FFNT	Indlv	14	2	0	2	774		
Eastern State Hospital	Mental	State	1,360	1,250	0	0	446		
Et Sanders Hospital	Gen	Indep	130	67	15	46	4	2,730	
Knoxville Gen Hosp	Gen	City	261	124	24	70	16	4,933	
St Mary's Memorial Hosp	Gen	Church	63	32	12	21	4	1,203	
Lawrenceburg 3,107—Lawrence Co Lawrenceburg Rural Sanatorium and Hospital	Gen	Indep	20	7	2	0	5	362	
Lawson 4,640—Wilson Co Marshall's Infirmary	Gen	Indlv	20		1	0			
Martha Gordon Hospital	Gen	Indlv	20	New	0	2			
McFarland Hospital	Gen	Indlv	12		0	3			
Marburg 3,112—Marshall Co Wheat's Hospital	Gen	Indlv	30		1	0	2	100	
Landon —Landon Co J. I. Harrell Jr Sanit	Gen	Indlv	25	1	0	1	375		
Madison 1,000—Davidson Co Madison Rural Sanit	Gen	Indep	30	2	5	4	7	747	
Maryville 4,000—Blount Co Maryville Hospital	Gen	Indlv	0		0	0	135		
McMinnville 1,114—Warren Co McMinnville Infirmary	Gen	Indlv	10	4	0				
Memphis 1,143—Shelby Co Baptist Memorial Hosp	Gen	Church	10	22	20	15	12	10	

TENNESSEE—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Collins Chapel Connectional Hospital (col)	Gen	Indep	50	12	10	12	1	291	
Crippled Children's Hospital School	Ortho	Indep	36	34	0	2	113		
Gertly Ramsay Hospital	Gen	Indep	42	22	8	19	2	1,034	
Hosp for Crippled Adults	Ortho	Indep	60	20				258	
Jane Terrell Baptist Hospital (col)	Gen	Church	25	10					
Lynchburg Sanatorium	N&M	Indlv	20	7		0	2	31	
Memphis Eye, Ear, Nose and Throat Hospital	EENT	Indep	65	15	4	0	3	2,408	
Memphis General Hosp	Gen	City	378	353	47	133	31	0	751
Methodist Hospital	Gen	Church	155	103	30	70	9	4,219	
St Joseph's Hospital	Gen	Church	280	90	38	72	14	3,573	
U S Marine Hospital	Gen	USPHS	65	77		0	8	648	
Veterans Admin Hospital	Gen	VetAd	453	297		0	40	3,895	
Wallace Sanatorium	N&M	Part	50	22		0	0	374	
Willie O Campbell Clinic	Ortho	Part	50	12		0	7	658	
Monterey, 1,731—Putnam Co Officer's Sanatorium	TB	Indlv	12	5		0	1	25	
Morristown, 7,305—Hamblen Co Morristown General Hosp	Gen	Indep	30	7	3	7	1	447	
Murfreesboro 7,933—Rutherford Co Rutherford Hospital	Gen	Indep	42	22	8	0	6	1,035	
Nashville, 153,866—Davidson Co Barr Infirmary	Gen	Indlv	25	15					
Central State Hospital	Mental	State	1,000	1,411					
City View Sanatorium	N&M	Indlv	65	30		10	1	316	
Davidson County Tuberculosis Hospital	TB	County	300	230		24	6	101	
Geo W Hubbard Hospital (col)	Gen	Indep	144	84	20	60	11	2,458	
Millie E Hale Hosp (col)	Gen	Indep	50	18	10	6	6	503	
Nashville General Hosp	Gen	City	275	155	40	83	12	5,590	
Protestant Hospital	Gen	Indep	98	53	12	67		2,131	
St Thomas Hospital	Gen	Church	201	146	24	78	18	4,789	
Vanderbilt University Hospital	Gen	Indep	103	160	15	94	63	3,910	
Newport 2,989—Cooke Co E E Norcutt Infirmary	Gen	Indlv	10	4	2	0	2	200	
Oakville 163—Shelby Co Oakville Memorial Sanit	TB	Cy&Co	240	235		0	21	232	
Paris, 8,164—Henry Co McGowan Clinic	Gen	Indlv	16	10	4	0	1	310	
Wiggins Clinic	Gen	Indlv	10	1	1	0	1	58	
Pleasant Hill, 165—Cumberland Co Uplands Cumberland Mountain Sanatorium	Gen	Indep	20	9	2	0	3	72	
Pressman's Home 160—Hawkins Co International Printing Pressmen and Assistants' Union Sanatorium and Home	TB	Indep	60	30		0	3	15	
Pulaski 3,367—Giles Co Pulaski Hospital	Gen	Indlv	24	0	2	0	2	400	
Ridgely 196—Robertson Co Watauga Sanatorium	TB	Indep	40	10		0	2	30	
Rockwood 3,898—Roane Co Chamberlain Mem Hospital	Gen	Indep	40	13	5	8	2	505	
Rogersville 1,590—Hawkins Co Lyon's Private Hospital	Gen	Indlv	10	4		0	2	30	
Sewanee 520—Franklin Co Emerald Hodgson Memorial Hospital	Gen	Church	30	19	10	0	4	767	
Shelbyville 5,010—Bedford Co Bedford County Hospital	Gen	Indep	25	10	2	0	1	410	
Sweetwater 2,271—Monroe Co Sweetwater Hospital	Gen	Indlv	18	3	4	0	1	108	
Related Institutions									
Chattanooga 119,708—Hamilton Co William L Bork Mem Hosp	Mental	State	112	0		0	0	142	
Copperhill 1,000—Polk Co Tennessee Copper Company's Hospital	Indus	Indus	16	4		0	1	44	
Donelson 110—Davidson Co Tennessee Home and Training School for Feeble-minded Persons	MenDef	State	300	300		0	0	00	
Ducktown 1,520—Polk Co Kinsey Gulch Hospital	Gen	Indlv	7	5		0			
Etowah 4,209—McMinn Co Etowah Hospital	Surg	Indlv	14	2		0	1	60	
Fayetteville 3,822—Lincoln Co Lincoln County Hospital	Gen	County	25	0	2	0	1	216	
Fountain Head 180—Sumner Co Fountain Head Sanatorium and Hospital	Conv	Indep	25	11		0	4	75	
Hermitage 62—Davidson Co Confederate Soldiers Home	Inst	State	18	0		0	0	3	
Johnson City 25,080—Washington Co Veterans Admin Home	Inst	VetAd	860	620		0	30	2,973	
Knoxville 105,862—Knox Co Revere Leach Infirmary	FEENT	Port	6			0	2	25	
Tennessee School for Deaf	Inst	State	20	4		0	1	79	
Univ of Tennessee Infirmary	Inst	State	25	3		0	4	250	
Maryville 4,908—Blount Co Burrell's Eye, Ear and Throat Hospital	FEENT	Indlv	6	1		0	2	223	
Maryville College Hospital	Inst	Indep	12			0			
Memphis 23,143—Shelby Co Ella Oliver Home	Water	Indep	30	16	12	0			
Hayes Sanatorium	N&M	Indlv	30	9		0			
Shelby County Hospital	Inst	County	63	43		0		44	
Nashville 13,300—Davidson Co Davidson County Hospital	Mental	County	630	320		0	0	400	
Davidson County Isolation Hospital	Inst	County	30	15		0			

TEXAS—Continued

TEXAS									
Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Ablene, 23,175—Taylor Co									
Ablene State Hospital ¹⁰	Epil	State	1,050	975		0	2		187
West Texas Baptist Sanita- rium ¹⁰	Gen	Church	60	30	8	23	0		1,768
Allice 4,239—Him Wells Co									
Allice Hospital	Gen	Part	12	5	2	0	3		215
Amario 43,132—Potter Co									
Northwest Texas Hospital ¹⁰	Gen	County	75	46	10	71	7		1,690
St Anthony's Hospital ¹⁰	Gen	Church	100	37	12	4	3		1,555
Archer City, 1,512—Archer Co									
Archer Hospital	Gen	Indiv	14	7	4	0			
Austin, 53,120—Travis Co									
Austin City Hospital ¹⁰	Gen	City	140	54	15	52			2,245
Austin State Hospital ¹⁰	Mental	State	1,750	1,805		0			
St David's Hospital ¹⁰	Gen	Church	60	29	12	25	4		1,075
Seton Infirmary ¹⁰	Gen	Church	100	45	10	55	8		1,776
Ballinger, 4,187—Runnels Co									
Halley and Love Sanit ¹⁰	Gen	Part	20	7	5	0			
Bastrop 1,895—Bastrop Co									
F A Orgain Memorial Hosp	Gen	Indep	14	5	2	0	2		304
Bay City, 4,070—Matagorda Co									
Dr Loos' Hospital	Gen	Indiv	15	5	6	0	1		231
Beaumont, 57,732—Jefferson Co									
Beaumont General Hospital	Gen	Indep	75	30	10	0	16		1,409
Hotel Dieu Hospital ¹⁰	Gen	Church	161	90	14	57	12		3,004
Jefferson County Tubereu- losis Hospital	TB	County	75	55		0	3		86
Jefferson County Tuberculo- losis Hospital (col)	TB	County	20	15		0	1		46
Belton, 3,779—Bell Co									
Belton General Hospital	Gen	Part	14	4	4	0	3		
Big Spring, 13,735—Howard Co									
Big Spring Hospital	Gen	Indep	35	11	6	0	7		740
Bivings and Bareus Hospital	Gen	Indiv	19	3	6	0	3		218
Bonham, 5,655—Fannin Co									
S B Allen Memorial Hosp ¹⁰	Gen	Indep	32	10		10	5		305
Borger, 6,572—Hutchinson Co									
North Plains Hospital	Gen	County	20	5	4	0	2		336
Bowie, 4,131—Montague Co									
Bowie Clinic Hospital	Gen	Indep	14	5	2	0	2		291
Brackettville, 1,822—Kinney Co									
Station Hospital ¹⁰	Gen	Army	25	10	1	0	0		260
Brady, 3,983—McCulloch Co									
Brady Sanitarium ¹⁰	Gen	Part	45	14	5	14	5		1,401
Breckenridge, 7,569—Stephens Co									
West Side Hospital	Gen	Indep	15	6	4	0	4		228
Brenham, 5,974—Washington Co									
Brenham Hospital ¹⁰	Gen	Church	25	8	4	0	5		632
Sarah B Milroy Memorial Hospital	Gen	Indep	25	7	2	0	3		353
Brownsville 22,021—Cameron Co									
Mercy Hospital	Gen	Church	50	10	6	0	11		607
Station Hospital ¹⁰	Gen	Army	50	5		0	0		314
Brownwood 12,789—Brown Co									
Bellvue Hospital	Gen	Indiv	16	7	6	0	2		258
Central Texas Hospital	Gen	Indiv	75	15	2	3	0		726
Medcal Arts Hospital ¹⁰	Gen	Indep	36	9	4	0	1		558
Bryan, 7,814—Brazos Co									
Wilkinson Memorial Clinic ¹⁰	Gen	Indiv	12	5	2	0	2		350
Cameron 4,565—Mllam Co									
Cameron Hospital ¹⁰	Gen	Part	35	20	5	12	2		636
Canadian 2,008—Hemphill Co									
Canadian Hospital	Gen	Indiv	10	5	2	0	1		150
Center, 2,510—Shelby Co									
Center Sanitarium	Gen	Indiv	12	2	2	0	1		100
Warren Hospital	Gen	Part	12	3	1	0			125
Childress, 7,163—Childress Co									
Jeter Townsend Hospital	Gen	Part	30	9	3	0	1		287
Cisco 6,027—Eastland Co									
Graham Sanitarium ¹⁰	Gen	Indiv	26	9	4	0	2		432
Cleburne 11,559—Johnson Co									
Cleburne Sanitarium	Gen	Indiv	20	10	5	0			
Coleman 6,078—Coleman Co									
Overall Memorial Hospital	Gen	Cy & Co	30	10	2	0	5		1,100
Colorado, 4,671—Mitchell Co ^c									
C L Root Hospital	Gen	Indiv	20	7	4	0	2		375
Conroe, 2,457—Montgomery Co									
Mary Swain Sanitarium	Gen	Indiv	20	5	4	0	2		398
Corpus Christi 27,741—Nueces Co									
Fred Roberts Mem Hosp ¹⁰	Gen	Indep	67	16	10	20	4		881
Medcal Professional Hospital	Gen	Indep	26	6	5	0			540
Spohn Hospital ¹⁰	Gen	Church	56	36	12	24	5		1,710
Corseana 15,202—Navarro Co									
Corseana Hosp and Clinic ¹⁰	Gen	Indep	20	4	2	0	2		132

Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated	Capacity	Average Patients	Bassnests	Student Nurses	RNs for Nursing	Patients Admitted
Navarro Clinic	Gen	Indep	20		7	4	0	3	444
Physicians and Surgeons Hospital	Gen	County	60	21	6	0	4		800
Cuero, 4,672—DeWitt Co	Gen	Indep	35	15	1	0			
Burns Hospital	Gen	Church	35	4	2	0	2		207
Dallas, 260,475—Dallas Co	Gen	Church	320	223	30	161	24		8,649
Baylor Hospital***	Gen	Church	60	34		22	5		617
Bradford Memorial Hospital for Babies	Chil	Indep	60						
Carrell Drive Girard Clinic and Dallas Ortho Hosp	Ortho	Indep	25	15		0	2		275
Dallas Medical and Surgical Clinic Hospital	Gen	Part	27	13		0	5		80
Dallas Methodist Hospital	Gen	Church	82	61	18	47	18	2,000	
Jonas Eye, Ear, Nose and Throat Hosp and Clinic	FL&T	Part	11	3		0	4		778
McMillan Sanitarium (col)	Gen	Indlv	16	4	1	0	1		180
Parkland Hospital***	Gen	Cy&Co	260	224	35	100	9		8,105
Pinkston Clinic (col)	Gen	Indlv	14	5	2	0	3		196
Rushing Clinic and Sanit	Gen	Indlv	25	17	7	0	9		477
St Paul's Hospital***	Gen	Church	271	140	20	115	36	5,683	
Texas Scottish Rite Hospital for Crippled Children	Ortho	Frat	75	48		0	4		552
Timberlawn Sanitarium	N&M	Indep	38	20		0			149
Woodlawn Sanitarium	TB	Cy&Co	100	100		0	6		264
Denison, 13,850—Grayson Co	Gen	Indep	25	10	5	0	4		400
Denison City Hospital	Gen	Frat	25	9	3	0			
Mercy Hospital (col)	Gen	Frat	25	9	3	0			
M K T Railroad Employees Hospital	Indus	Indus	65	45		0	6		825
Denton, 9,587—Denton Co	Gen	Part	32	5	5	0	3		172
Denton Hospital and Clinic	Gen	Indlv	12	5	1	0			
Eagle Pass, 5,090—Maverick Co	Gen	Indlv	12	5	1	0			
Gates Hospital	Gen	Indlv	12	5	1	0			
Edinburg, 4,821—Hidalgo Co	Gen	Indlv	56	7	12	0	4		247
Ponton Brown Clinic Hosp	Gen	Indlv	56	7	12	0	4		247
Electra, 6,712—Wichita Co	Gen	Part	23	4	4	0	2		142
Parmley Ogden Hospital	Gen	Part	23	4	4	0	2		142
El Paso, 102,421—El Paso Co	Gen	Cy&Co	143	99	8	0	10		1,961
El Paso City County Hosp	Gen	Frat	50	30	15	24	3		1,216
El Paso Masonic Hosp	Gen	Part	57	30		0	3		39
Hendricks Lawe Sanatorium	TB	Part	110	61		0	10		74
Homan Sanatorium	TB	Part	110	61		0	10		74
Hotel Dieu, Sisters Hosp	Gen	Church	100	39	24	40	7		1,611
Long Sanatorium	TB	Indlv	40	17		0	1		
Price Sanatorium	TB	Indlv	15			0	1		
Providence Hospital	Cen	Indlv	50	20	8	0	12		900
St Joseph's Sanatorium	TB	Church	75	50		0	6		65
Southern Baptist Sanat	TB	Church	70	45		0			92
William Beaumont General Hospital	Gen	Army	512	323	8	0	28		3,476
Ennis, 7,069—Ellis Co	Gen	City	23	6	3	0	1		246
Municipal Hospital	Gen	City	23	6	3	0	1		246
Floresville, 1,581—Wilson Co	Gen	Part	10	3	1	0	0		123
Oxford Archer Hospital	Gen	Part	10	3	1	0	0		123
Floydada, 2,637—Floyd Co	Gen	Part	12	3		0			
Dr Smith & Smith Sanit	Gen	Part	12	3		0			
Forney, 1,216—Kaufman Co	Gen	Indep	25	6	5	0			86
Forney Sanitarium	Gen	Indep	25	6	5	0			86
Ft Worth, 163,477—Tarrant Co	Gen	Church	85	28	15	0	12		1,189
All Saints Episcopal Hosp	N&M	Indep	40	20		0	0		108
Arlington Heights Sanit	Gen	Church	60	30	11				
Baptist Hospital	Gen	Church	60	30	11				
City and County Hosp ***	Gen	Cy&Co	100	67	15	44	11		7,180
W I Cook Memorial Hosp	Gen	Indep	53	26	8	0	16		948
Ft Worth Children's Hosp	Chil	Indep	75	22					
Harris Clinic Hospital***	Gen	Indlv	90	45	10	32	4		1,500
Methodist Hospital	Gen	Church	85	41	15	37	10		1,595
St Joseph's Hospital*	Gen	Church	185	80	15	66	20		2,767
Freeport, 4,162—Brazoria Co	Gen	Indep	14	5	5	0	1		
Freeport Hospital	Gen	Indep	14	5	5	0	1		
Galveston, 52,035—Cooke Co	Gen	Indep	25	15	6				
Galveston Sanitarium	Gen	Indep	25	15	6				
Galveston State Psychopathic Hospital	Mental	State	54	44		0	4		241
John Sealy Hospital***	Gen	City	750	263	24	146	24		5,445
St Mary's Infirmary***	Gen	Church	170	126	17	43	1		2,188
Station Hospital	Gen	Army	25	14		0	0		544
U S Marine Hospital***	Gen	USPHS	106	157		0	16		1,172
Georgetown, 3,589—Williamson Co	Gen	Part	17	6		0	7		236
Martin Hospital	Gen	Part	17	6		0	7		236
Gilmer, 1,863—Upshur Co	Gen	Indlv	15	4	2	0			101
Linwood Sanitarium	Gen	Indlv	12	3	2	0	1		110
Oaklawn Sanitarium	Gen	Indlv	12	3	2	0	1		110
Gonzales, 3,808—Gonzales Co	Gen	Indep	25	10	5	0			
Holmes Hospital	Gen	Indep	25	10	5	0			
Gorinan, 1,154—Eastland Co	Gen	Part	22	10	2	0			
Blackwell Sanitarium	Gen	Part	22	10	2	0			
Graham, 4,981—Young Co	Gen	Indep	16	12	7	0	4		486
Graham Hospital	Gen	Indep	16	12	7	0	4		486
Greenville, 12,407—Hunt Co	Gen	Indep	16	12	7	0	4		486
Dr F P Beeton's Hospital	Surg	Indlv	16	6		0			20
Cantrell Hospital	Gen	Indlv	25	10	4	0			
Dr Joe Beeton's Hospital	Surg	Indlv	17	3		0	2		107
Groesbeck, 2,079—Imperial Co	Gen	Indlv	12	5	3	0	0		105
Dr Cox's Hospital	Gen	Indlv	12	5	3	0	0		105
Gulf, 725—Matagorda Co	Gen	Indlv	12	5	3	0	0		105
Texas Gulf Sulphur Company Hospital	Gen	Indus	14	7	1	0	1		50
Hallettsville, 1,408—Lavaca Co	Gen	Indlv	15	3	2	0	1		62
Renger Hospital	Gen	Indlv	15	3	2	0	1		62
Hamilton, 2,084—Hamilton Co	Gen	Part	52	15	4	0	7		700
Hamilton Sanitarium	Gen	Part	52	15	4	0	7		700
Hurlington, 12,124—Cameron Co	Gen	Church	14	4	4	0	6		197
Valley Baptist Hospital	Gen	Church	14	4	4	0	6		197

TEXAS—Continued

TEXAS—Continued									
Hospitals and Sanatoriums	Type of Service	Control	Beds Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Henderson 2 632—Rusk Co	Geo	Indiv	30	10	4	0	2		
Henderson Hospital									
Hersford 2 438—Deaf Smith Co	Gen	County	15	4	4	0	3		227
Deaf Smith County Hospital									
Hillsboro 7,823—Hill Co	Gen	Indiv	24	4	2	0	4		235
Boyd Sanatorium									
Houston 292 352—Harris Co	Children's	Dept of the	Houston	Tuberc	Hosp				
Autry Memorial Hosp	Indep		35	26	0	0			143
Dr Greenwood's Sanitarium	N&M		30	11	5	0	3		702
Hights Clinic	Gen	Indep	170	124	20	50	13	3	704
Hermana Hospitals	Gen	Indep							
Houston Eye Ear Nose and Throat Hospital	EENT	Indep	27	3	0	5	1		277
Houston Negro Hospital	Gen	Indep	50	21	3	14	4		035
Houston Tuberculosis Hosp	TB	Cy & Co	171	145	0	4			402
Jefferson Davis Hospital	Gen	Cy & Co	160	186	10	40	14	0	088
Memorial Hospital	Gen	Church	170	90	21	83	6	2	50
Methodist Hospital	Gen	Church	85	57	12	37	6	2	330
Park View Hospital	Gen	Indep	25	7	4	0	3		436
St Joseph's Infirmary	Gen	Church	209	130	18	102	2	5	332
Southern Pacific Hospital	Indus	Indus	140	78	0	7	1	7	717
Turner Urological Institute	Urol	Indiv	16	7	0	4			2,632
Jacksonville 6748—Cherokee Co	Gen	Indep	35	20	5	0	0	1	1074
Nan Travis Memorial Hosp									
Jasper 3,303—Jasper Co	Gen	Part	15	10	0				
Huddy Hancock Hospital	Gen	Indiv	31	4	2	0			
Jasper General Hospital									
Kelly Field—Bexar Co	Gen	Army	30	15	0	0	1	1	46
Kerrville 4,546—Kerr Co	Gen	Indiv	25	8	2	0	2		240
Kerrville Clinic and Secor Hospital	TB	Indiv	86	45	0	3			102
Thompson Sanatorium									
Kingsville 6,815—Kleberg Co	Gen	County	50	15	0	0	8		609
Kleberg County Hospital									
Knox City 900—Knox Co	Gen	County	15	9	6	0			
Knox County Hospital									
Lagrange 2,351—Hayette Co	Gen	Indep	45	19	5				
Lagrange Hospital									
Lamesa 3,525—Dawson Co	Gen	Indiv	15	3	4	0	1		
Lamesa Sanitarium	Gen	Part	15	4	3	0	2		205
Loveless & Beckett Hospital									
Laredo 32,618—Webb Co	Gen	Church	85	25	0	15	1	1	620
Mersey Hospital	Gen	Army	25	7	0	0			342
Station Hospital									
Region 810—Kerr Co	TB	VetAd	433	357	0	35			67
Veterans Admin Hospital									
Livingston 1,165—Polk Co	Gen	Indiv	20	6	3	0	2		139
Bergman Hospital									
Lockhart 4,307—Caldwell Co	Gen	Indep	18	4	1	0	2		463
Lockhart Sanitarium									
Longview 5,636—Gregg Co	Gen	Indiv	10	3	0				500
Hurst Eye Ear Nose and Throat Hospital	FENT	Indiv	19	8	3	0	6		308
Marshall 20,520—Lubbock Co	Gen	Indep	90	49	10	40			2,400
Lubbock Sanitarium	Geo	Indep	60	20	6	22	5	1	384
West Texas Hospital									
Tufkin 7,311—Angelina Co	Gen	County	35	22	4				
Angelina County Hospital									
Ullinn 5,040—Caldwell Co	Gen	Indiv	10	5	4	0	1		227
Ullinn Hospital									
Marfa 3,609—Presidio Co	Gen	Army	64	14		0	0		470
Station Hospital									
Marlin 5,735—Falls Co	Gen	Indiv	20	16	2	0	4		600
Bule Allen Hospital	Gen	Indiv	10	2	2	0	2		118
Shaw Clinic and Hospital	Gen	Indiv	42	17	3	0	6		060
Torlett Sanatorium									
Marshall 16,203—Harrison Co	Gen	Indep	30	10	7	0	3		410
Kaha Memorial Hospital									
McAllen 9,074—Hidalgo Co	Gen	City	65	20	8	10	3		608
McAllen Municipal Hospital									
McKinney 7,307—Collin Co	Gen	Indiv	12	5	0	0			260
Burton Eye Ear Nose and Throat Sanitarium	FENT	Indiv	36	15	4	11	5		70
McKinney City Hospital	Gen	Indiv	15	4	3	0	1		14
Memphis 4,257—Hall Co	Gen	Indiv	22	6	4	0	3		26
Memphis Hospital									
Mercedes 6,608—Hidalgo Co	Gen	Indiv	20	7	3	0			
Mercedes Central Hospital									
Mexia 6,570—Imperial Co	Gen	Indiv	20	7	3	0			
Brown Hospital									
Midland 4,484—Midland Co	Gen	Indiv	20	7	3	0	1	1	17
Midland (Blue) Hospital									
Mineral Well 1,984—Palo Alto Co	Gen	Church	41	4	4	0	4		20
Nazareth Hospital									
Nacogdoches 6,858—Nacogdoches Co	Gen	City	50	14	2	0	5		4
City Memorial Hospital									
Nevada 1,288—Crimms Co	Gen	Indiv	20	4	4	0	1		7
Brizo Valley Sanitarium									
New Braunfels 6,342—Comal Co	Gen	Indiv	25	4	0	0			2
Comal Sanitarium									
New Braunfels Hospital	Gen	Indiv	20	7	3	0			
Oney 41,888—Young Co	Gen	Indiv	20	7	3	0			
Hamilton Hospital									
Orange 7,477—Orange Co	Gen	Indiv	20	7	3	0			
Frances Ann Luther Ho p	Gen	Indiv	20	7	3	0			
La Grange 2,848—Cottle Co	Gen	Indiv	20	7	3	0			
W O Richards Mem Ho p	Gen	Indiv	20	7	3	0			
La Grange 2,848—Cottle Co	Gen	Indiv	20	7	3	0			
La Grange 2,848—Cottle Co	Gen	Indiv	20	7	3	0			
La Grange 2,848—Cottle Co	Gen	Indiv	20	7	3	0			
La Grange 2,848—Cottle Co	Gen	Indiv	20	7	3	0			
La Grange 2,848—Cottle Co	Gen	Indiv	20	7	3	0			
La Grange 2,848—Cottle Co	Gen	Indiv	20	7	3	0			
La Grange 2,848—Cottle Co	Gen	Indiv	20	7	3	0			
La Grange 2,848—Cottle Co	Gen	Indiv	20	7	3	0			
La Grange 2,848—Cottle Co	Gen	Indiv	20	7	3	0			
La Grange 2,848—Cottle Co	Gen	Indiv	20	7	3	0			
La Grange 2,848—Cottle Co	Gen	Indiv	20	7	3	0			
La Grange 2,848—Cottle Co	Gen	Indiv	20	7	3	0			
La Grange 2,848—Cottle Co	Gen	Indiv	20	7	3	0			
La Grange 2,848—Cottle Co	Gen	Indiv	20	7	3	0			
La Grange 2,848—Cottle Co	Gen	Indiv	20	7	3	0			
La Grange 2,848—Cottle Co	Gen	Indiv	20	7	3	0			
La Grange 2,848—Cottle Co	Gen	Indiv	20	7	3	0			
La Grange 2,848—Cottle Co	Gen	Indiv	20	7	3	0			
La Grange 2,848—Cottle Co	Gen	Indiv	20	7	3	0			
La Grange 2,848—Cottle Co	Gen	Indiv	20	7	3	0			
La Grange 2,848—Cottle Co	Gen	Indiv	20	7	3	0			
La Grange 2,848—Cottle Co	Gen	Indiv	20	7	3	0			
La Grange 2,848—Cottle Co	Gen	Indiv	20	7	3	0			
La Grange 2,848—Cottle Co	Gen	Indiv	20	7	3	0			
La Grange 2,848—Cottle Co	Gen	Indiv	20	7	3	0			
La Grange 2,848—Cottle Co	Gen	Indiv	20	7	3	0			
La Grange 2,848—Cottle Co	Gen	Indiv	20	7	3	0			
La Grange 2,848—Cottle Co	Gen	Indiv	20	7	3	0			
La Grange 2,848—Cottle Co	Gen	Indiv	20	7	3	0			
La Grange 2,848—Cottle Co	Gen	Indiv	20	7	3	0			
La Grange 2,848—Cottle Co	Gen	Indiv	20	7	3	0			
La Grange 2,848—Cottle Co	Gen	Indiv	20	7	3	0			
La Grange 2,848—Cottle Co	Gen	Indiv	20	7	3	0			
La Grange 2,848—Cottle Co	Gen	Indiv	20	7	3	0			
La Grange 2,848—Cottle Co	Gen	Indiv	20	7	3	0			
La Grange 2,848—Cottle Co	Gen	Indiv	20	7	3	0			
La Grange 2,848—Cottle Co	Gen	Indiv	20	7	3	0			
La Grange 2,848—Cottle Co	Gen	Indiv	20	7	3	0			
La Grange 2,848—Cottle Co	Gen	Indiv	20	7	3	0			
La Grange 2,848—Cottle Co	Gen	Indiv	20	7	3	0			
La Grange 2,848—Cottle Co	Gen	Indiv	20	7	3	0			
La Grange 2,848—Cottle Co	Gen	Indiv	20	7	3	0			
La Grange 2,848—Cottle									

TEXAS—Continued

TEXAS—Continued									
Hospitals and Sanatariums	Type of Service	Control	Beds, Rated	Capacity	Average Patients	Baggists	Student Nurses	RNs for Nursing	Patients Admitted
Paris 15 049—Lamar Co									
Lamar County Hospital	Gen	County	50	18	7	0	5		504
St Joseph's Infirmary	Gen	Church	40	18	5	0	7		634
Sanitarium of Paris	Gen	Indiv	62	88	4	30	3	1	208
Pecos, 3 304—Reeves Co									
Camp and Camp Hospital	Gen	Part	20	5	4	0	2		309
Plainview 8 834—Hale Co									
Plainview Sanitarium and Clinic	Gen	Indiv	45	21	3	10	2		1,113
Pt Arthur 50 902—Jefferson Co									
St Mary's Hospital Gates Memorial	Gen	Church	150	40	12	32			1,774
Prairie View—Waller Co									
Prairie View Hospital	Gen	State	50	14	3	3	4		470
Quannah 4 464—Hardeman Co									
Quannah Hospital	Gen	Part	35	17	4	0	3		625
Ranger 6 208—Eastland Co									
City County Hospital	Gen	Cy & Co	30	10	3	0			
West Texas Clinic Hospital	Gen	Indep	18	14	2	0			
Rio Grande, 2 288—Starr Co									
Station Hospital	Gen	Army	30	5		0	0		200
Rosenberg 1,941—Ft Bend Co									
Rosenberg Hospital	Gen	Indiv	14	1	1	0	1		345
Rusk 3,850—Cherokee Co									
Rusk State Hospital	Mental	State	1,847	1,818		0	2		528
San Angelo 25,908—Tom Green Co									
Rush Schulkey and Wall Clinic Hospital	Gen	Indep	25	1	5	0	2		825
St John's Hospital	Gen	Church	32	15	6	0			512
Shannon West Texas Memorial Hospital	Gen	Indep	65	35	8	25	7	1	1 007
San Antonio 231 542—Bexar Co									
Baylor Hospital	Gen	Indep	65	40	10	0	12	1	1 040
Eye, Ear, Nose and Throat Hospital	MENT	Indep	35	10		0			
Dr Farmer's Sanatorium	TB	Indiv	20	10		0	0		25
Grace Lutheran Sanatorium	TB	Church	50	30		0	1		86
Dr Kenney's Sanatorium	Gen	Indiv	88	50	12	0	3	1	800
Lee Surgical Hospital	Gen	Indep	30	10	5	0	6		595
Medical & Surgical Hosp	Gen	Indep	100	47	15	30	5		2,309
Medical Arts Hospital	Gen	Indep	34	17	3	0	0		1,550
Dr Moody's Sanitarium	N&M	Indep	50	31		0	1		197
Mix Hospital	Gen	Indep	160	27	24	0	17	1	1 837
P and S Hospital	Gen	Indep	60	40	14	30	5	2	2 023
Robert B Green Memorial Hospital	Gen	Cy & Co	210	102	27	60	0	5	5 895
San Antonio State Hosp	Mental	State	2 222	2,308		35	7		529
Santa Rosa Hospital	Gen	Church	342	100	44	95	4		4,709
Station Hospital	Gen	Army	40	18		0			
Station Hospital	Gen	Army	650	584	10	0	75	6	820
Woodmen of the World War Memorial Hospital	TB	Frat	180	180		0	7		183
Sanatorium 403—Tom Green Co									
State Tuberculosis Sanat	TB	State	718	641		45	16	1	221
San Marcos, 5 134—Hays Co									
Soldiers and Sailors Memorial Hospital	Gen	Cy & Co	20	5	4	0	2		200
Santa Anna 1 883—Coleman Co									
Sealy Hospital	Gen	Indiv	30	16	3	18	2		758
Sealy 1 040—Austin Co									
Sealy Hospital	Gen	Indiv	11	2	2	0	1		201
Seguin									
Seguin Hospital	Gen	Indep	22	8	3	0			
Seymour 2 026—Baylor Co									
Baylor County Hospital	Gen	County	1	3	14	0	3		182
Shamrock 3 760—Wheeler Co									
Dr Beach Sanitarium	Gen	Indiv	20	6	5	0			276
Shamrock General Hospital	Gen	Indiv	40	10	5	0	3		450
Sherman 10 713—Grayson Co									
St Vincent's Sanitarium	Gen	Church	50	10	6	12	0		756
Wilson & Jones Hospital	Gen	Indep	60	30	4	23	0		1,102
Shiner 1 372—Lavaca Co									
Dr Wagner's Hospital	Gen	Indiv	16	12	6	0	2		321
Silsbee 8 060—Hardin Co									
Kirby Hospital	Indus	Indus	22	0		0			
Slaton 3,876—Lubbock Co									
Mercy Hospital	Gen	Church	60	7	6	0	0		245
Spur 1,890—Dickens Co									
Nichols Sanitarium	Gen	Indiv	20	4	4	0	2		180
Stamford 4 009—Jones Co									
Stamford Sanitarium	Gen	Indep	40	13	4	19	3		606
Stephenville 3 044—Erath Co									
Stephenville Hospital	Gen	Indiv	20	0	1	0	2		381
Sugar Land 2,019—Ft Bend Co									
Laura Eldridge Memorial Hospital	Gen	Indep	30	2	2	0	2		428
Sweetwater 10 448—Arlan Co									
Sweetwater Clinic Hospital	Gen	Part	16	7	7	0			269
Taylor 7 463—Williamson Co									
Doak and Stromberg Clinic and Hospital	Gen	Indiv	25	19					
Taylor Sanitarium	Gen	Indep	2	14	2	12			316
Teague 3,500—Freestone Co									
Davidson Sanitarium	Gen	Indiv	20	12	3	0			
Temple 15 34—Bell Co									
Gulf Colorado and Santa Fe Hospital	Indus	Indus	10	36		0	8	1	270
Kings Daughters Clinic and Hospital	Gen	Indep	110	49	8	33	7	2	431
Scott and White Hosp	Gen	Indep	102	91	8	62	16	2	3,333
Woodco Eye Ear Nose and Throat Hospital	MENT	Part	14	5		0	2		164
Turrell 8 790—Kaufman Co									
Alexander Holton Hospital	Gen	Part	20	6	2	0	3		543
Turrell State Hospital	Mental	State	2 260	2 090		0	0		30
Tuxarkana 16 002—Bowie Co									
Tuxarkana Hospital	Gen	Indep	50	50	5	14	4		544

Key to symbols and abbreviations is on page 911

TEXAS—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Vernon, 9,137—Wilbarger Co									
King Hospital and Mater nity Home	Gen	Indiv	22	8	4	0	1	500	
Moore Brothers' Hospital	Gen	Part	20	9	4	0			
Victoria, 7,421—Victoria Co									
Victoria Hospital	Gen	Indep	19	9	6	0	1	337	
Von Ormy, 213—Bexar Co									
Von Ormy Cottage Sanit	TB	Indep	45	22		0	2	59	
Waco, 52,848—McLennan Co									
Central Texas Baptist Sanit	Gen	Church	60	33	10	30	4	1,325	
Colgin Hospital and Clinic	Gen	Indep	40	7	2	0	5	451	
Providence Sanitarium	Gen	Church	141	80	9	62	3	2,850	
Veterans Admin Hospital	Mental	VetAd	308	new		0	15		
Waxahachie, 8,042—Ellis Co									
Waxahachie Sanitarium	Gen	Indep	32	22	2	0	4	517	
Wellington, 3,570—Collingsworth Co									
Wellington Hospital	Gen	Indiv	13	4	2	0	1	210	
Wharton, 2,691—Wharton Co									
Caney Valley Hospital	Gen	Indiv	12	7		4	2	150	
Whittenburg, —Hutchinson Co									
Pantex Hospital	Gen	Indus	12	2	3	0	2	102	
Wichita Falls 43,690—Wichita Co									
Margrave Walker Hosp and Clinic	Gen	Indep	36	5	8	0	4	2.0	
Wichita Falls Clinic Hospital	Gen	Part	72	30	8	0	6	1,575	
Wichita Falls State Hosp	Mental	State	1,025	1,760		0	8	753	
Wichita General Hospital	Gen	Cy&Co	120	44	12	35	8	2,126	
Yoakum, 5,650—Lavaca Co									
Huth Memorial Hospital	Gen	City	35	1	5	0	2	271	
Yorktown, 1,832—De Witt Co									
Allen Hospital	Gen	Indiv	12	9	3	0			

Related Institutions

Arlington, 3,661—Tarrant Co									
Knights Templar Hospital	Inst	Frat	27	13		0	1	267	
Austin, 53,120—Travis Co									
Austin State School	MenDef	State	1,040	1,025		0	2	305	
Oaks Sanitarium	N&M	Indep	25	10		0	0	47	
Texas Confederate Home									
Hospital	Inst	State	145	70		0			
Texas Confederate Woman's Home	Inst	State	107	105		0			
Texas School for Blind	Inst	State	50	7		0	1		
Belleville, 1,533—Austin Co									
Belleville Hospital	Gen	Part	8	2	1	0	1	170	
Borger, 6,532—Hutchinson Co									
Clutter Hospital	Gen	Indiv	6		3	0	1		
College Station, 40—Brazos Co									
Agricultural and Mechanical College Hospital	Inst	Indep	65	3		0	2	847	
Comfort, 713—Kendall Co									
Hillcrest Sanitarium and Private Hospital	Gen	Indiv	6	2		0		45	
Crowell, 1,946—Foard Co									
Foard County Hospital	Gen	Indep	10	2		0			
Crystal City, 6,609—Zavala Co									
Crystal Hospital	Gen	Part	10	3	2	0	0	129	
Dallas, 260,475—Dallas Co									
The Cedars Maternity Sanitarium and Home	Mater	Indiv	25	10	4	0	2	78	
Southern Conv Sanitarium	Conv	Indiv	20	20		0			
Union Hospital	Iso	Cy&Co	50			0			
Virginia K. Johnson Home	Mater	Church	10	1	4	0	1	20	
El Paso, 102,421—El Paso Co									
El Paso Smelter Hospital	Indus	Indus	12	1		0			
Fort Worth, 163,477—Tarrant Co									
Filmwood Sanitarium	TB	Cy&Co	50	48		0	2	70	
Howard Sanitarium	Conv	Indiv	8	6		0	2	50	
Masonic Home and School Hospital	Inst	Frat	30			0			
Tarrant County Home for the Aged	Inst	County	27	20		0			
Fredericksburg, 2,416—Gillespie Co									
Fredericksburg Sanitarium	Gen	Part	13	1	1	0	1	124	
Gatesville, 2,601—Coryell Co									
State Juvenile Training School	Inst	State	48	12		0	1		
Hallettsville, 1,408—Lavaca Co									
Hallettsville Hospital	Gen	Indiv	7	2	1	0	2	65	
Huntsville, 5,028—Walker Co									
Texas State Prison Hospital	Inst	State	56	46		0	0		
Hutchins, 368—Dallas Co									
Dallas County Farm	Conv	Cy&Co	217	161		0			
Iraan, —Pecos Co									
Iraan Hospital	Gen	Indiv	10	1	3	0	1	116	
Mason, 1,150—Mason Co									
Mason Sanitarium	Gen	Part	8	4		0	1	130	
Midland, 5,484—Midland Co									
Mid West Hospital Clinic	Gen	Indiv	7	3	2	0	2	126	
Myra, 417—Cooke Co									
Mercy Hospital	Gen	Indiv	8	2	2	0	1	10	
Nixon, 1,037—Gonzales Co									
Crest View Hospital	Gen	Indiv	8	4	2	0	1	105	
Pearsall, 2,536—Frio Co									
Dr. Beall's Day Hospital	Gen	Indiv	6	2	3	0	1	700	
Pecos, 3,304—Reeves Co									
Pecos Sanitarium	Gen	Indiv	8	3	3	0	1	200	
Poteet, 1,231—Atascosa Co									
Community Hospital	Gen	Indiv	7	1	1	0	0	53	
San Antonio, 231,542—Bexar Co									
Salvation Army Women's Home and Hospital	Mater	Church	10	3	1	0	1	91	
Southton, 60—Bexar Co									
Bexar County Home for Aged and Tuberculosis Colony	Inst, TB County		70	65		0			

TEXAS—Continued

Related Institutions	Type of Service	Control	Beds, Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Strawn, 1,420—Palo Pinto Co									
Strawn Hospital	Gen	Part	12	2	2	0	1	70	
Taylor, 7,463—Williamson Co									
Dr. Floeckinger's Sanitarium	Gen	Indiv	7	2	2	0			
Tulia, 2,202—Swisher Co									
Swisher County Hospital	Gen	County	20	10	12	0			
Victoria, 7,421—Victoria Co									
De Tar Hospital	Gen	Indiv	12	6		0			
Wichita Falls 43,690—Wichita Co									
Dr. White's Sanitarium	N&M	Indep	20	7		0	6	5	
Winters, 2,421—Runnels Co									
Winters Sanitarium	Gen	Part	8	2		0	0	87	
Summary for Texas									
Hospitals and sanatoriums	Number	Beds	Average Patients		Patients Admitted				
Related institutions	258	26,174	19,172		223,516				
Totals	299	23,575	20,771		244,420				
Refused registration	22	577							

UTAH

Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Bingham Canyon 3,248—Salt Lake Co									
Bingham Canyon Hospital	Gen	Indep	42	12	3	0	2	292	
Brigham, 5,091—Box Elder Co									
Cooley Hospital	Gen	Indiv	11	4		0	1	166	
Cedar City, 3,616—Iron Co									
Iron County Hospital	Gen	County	20	11	6	0	5	636	
Ft. Douglas, —Salt Lake Co									
Station Hospital	Gen	Army	48	12		0	0	50	
Ft. Duchesne, 100—Uintah Co									
Utah and Ouray Agency Indian Hospital	Gen	Indian	16	0		0	2	212	
Heber, 2,477—Wasatch Co									
Heber Hospital	Gen	Part	12	4	6	0	1	96	
Lehi, 2,826—Utah Co									
Lehi Hospital	Gen	Indiv	15	8		0	1		
Logan, 0,079—Cache Co									
Cache Valley General Hosp	Gen	Indep	25	9	8	0	5	514	
William Budge Mem Hosp	Gen	Indep	46	26	13	24	5	1,788	
Millard, 1,517—Benzer Co									
Millard Hospital	Gen	Indiv	12	3	5	0	1	151	
Moab, 853—Grand Co									
Grand County Public Hosp	Gen	County	16	7	4	0	3	400	
Ogden, 40,272—Weber Co									
Thomas D. Dee Memorial Hospital	Gen	Church	155	07	30	74	16	4,077	
Park City, 4,231—Summit Co									
Park City Miners' Hospital	Gen	Indus	50	10	10	0	2	304	
Price, 4,084—Carbon Co									
Price City Hospital	Gen	City	23	16		0	7	420	
Provo 14,766—Utah Co									
Ald Hospital	Gen	Indiv	20	6		0		268	
Utah State Hospital	Mental	State	1,043	923		0	0	253	
St. George, 2,434—Washington Co									
Washington County Hosp	Gen	Indep	17	5	4	0			
Sallina, 1,283—Sevier Co									
Sallina Hospital	Gen	Part	20	0		0	3	300	
Salt Lake City, 140,267—Salt Lake Co									
Dr. W. H. Groves Latter Day Saints Hospital	Gen	Church	424	170	32	107	50	5,211	
Holy Cross Hospital	Gen	Church	225	107	45	80	14	3,360	
Latter Day Saints Children's Hospital	Ortho	Church	40	30		0	1	167	
St. Mark's Hospital	Gen	Church	137	85	11	47	3	2,156	
Salt Lake Gen Hosp	Gen	County	188	171	23	45	23	3,236	
Shriners Hospital for Orphaned Children	(Uses Wards in St. Mark's Hospital)								
Veterans Admin Hospital	Gen	VetAd	103	New		0	13		
Spanish Fork, 3,727—Utah Co									
Hughes Memorial Hospital	Gen	Indiv	12	3	3	0		1.0	
Vernal, 1,744—Uintah Co									
Vernal Hospital	Gen	Indiv	11			0			

Related Institutions

American Fork, 3,047—Utah Co									
Utah State Training School	MenDef	State	200	175		0			
Brigham, 5,093—Box Elder Co									
Pearse Private Hospital	Gen	Indiv	12	3	2	0			
Fillmore, 1,374—Millard Co									
Fillmore Hospital	Gen	Indiv	5	1		0		2	
Hlawatha, 939—Carbon Co									
U S Fuel Company Hosp	Gen	Indus	8	1	2	0	1	300	
Murray, 5,172—Salt Lake Co									
Cottonwood State Maternity Hospital	Mater	Church	20	12	15	0	2	23	
Murray Clinic Hospital	Gen	Indiv	10	2	2	0	0	900	
Ogden, 40 272—Weber Co									
Utah School for the Deaf and Blind	Inst	State	20			0	1		
Richfield, 3,087—Sevier Co									
Richfield General Hospital	Gen	Indiv	6	1		0		60	
Salt Lake City, 140,267—Salt Lake Co									
Mountain View Sanitarium	N&M	Indiv	10			0	0		
Summary for Utah									
	Number	Beds	Average Patients		Patients Admitted				
Hospitals and sanatoriums	26	2,730	1,743		26 373				
Related institutions	9	291	203		1,620				
Totals	35	3 024	1,946		27,893				
Refused registration	0								

REGISTERED HOSPITALS

VERMONT

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Barre 11,307—Washington Co	Gen	Indep	50	35	12	23	4	1	1908
Barre City Hospital	Gen	County	47	42		0	1		61
Washington County Hospital	TB								
Lewells Falls 3,630—Windham Co	Gen	Indep	36	21	7	14	4		925
Rockingham Gen Hosp	Gen								
Bennington 7,390—Bennington Co	Gen	Indep	86	40	20	0	15		1,003
Henry W Putnam Memorial Hospital	Gen								
Brattleboro, 8,709—Windham Co	Gen	Indep	55	23	5	20		1	1,149
Brattleboro Mem Hospital	Gen	Indep	62	637		0	8		233
Brattleboro Retreat	Mental	Indep							
Burlington 24,789—Chittenden Co	Gen	Indep	112	80	10	60		2	2,817
Bishop De Goebsland Hos	Gen	Church	14	8		0	1		220
Green Mountain Sanat	Gen	Indiv	25	12		0	2		30
Lakeview Sanatorium	N&M	Indep	115	108	1	60	7	4	410
Mary Fletcher Hospital	Gen	Indep							
St Ethan Allen 106—Chittenden Co	Gen	Army	62	21	1	0	0		608
Station Hospital	Gen								
Hardwick 1,607—Caledonia Co	Gen	Indep	12		6	0	3		108
Hardwick Hospital	Gen								
Middlebury 2,003—Addison Co	Gen	Indep	43	10	10	0	7		610
Porter Memorial Hospital	Gen								
Montpelier 7,837—Washington Co	Gen	Indep	70	45	8	37	4	1	1,354
Heaton Hospital	Gen								
Newport 5,094—Orleans Co	Gen	Indep	26	15	0	11	3		390
Orleans County Memorial Hospital	Gen								
Pittsford 637—Rutland Co	TB	State	75	63		0	4		121
Vernon Sanatorium	Gen	Indus	33	0	7	0	5		315
Proctor 2,515—Rutland Co	Gen	Indus							
Proctor Hospital	Gen								
Randolph 1,937—Orange Co	Gen	Indep	47	26	10	15			722
Randolph Sanatorium	Gen								
Rutland 17,315—Rutland Co	Gen	Indiv	12	3	7	0	2		88
Brightview Private Hospital	Gen	Indep	110	62	16	52	5		2,142
Rutland Hospital	Gen								
St Albans 8,020—Franklin Co	Gen	Indep	45	37	5	23	1		1,684
St Albans Hospital	Gen								
St Albans Sanatorium	Gen								
St Johnsbury 7,920—Caledonia Co	Gen	Indep	53	31	12	45		1	1,001
Brightlook Hospital	Gen								
St Johnsbury Hospital	Gen	Church	30	14		0	5		195
Springfield 4,943—Windsor Co	Gen	Indep	30	13	6	0	0		400
Springfield Hospital	Gen								
Waterbury 1,776—Washington Co	Gen	Indep							
Vermont State Hospital for the Insane	Mental	State	1,050	939		0	4		310
Winooski 5,308—Chittenden Co	Gen	Church	75	63	13	32	10		1,076
Fanny Allen Hospital	Gen								
Related institutions									
Bennington, 7,390—Bennington Co	Inst	State	18	9		0	1		87
Vermont Soldiers Home Hospital	Inst								
Brandon 2,891—Rutland Co	Men	State	300	200		0	1		34
Brandon State School	Men								
Northfield 2,075—Washington Co	Inst	Indep	7	3		0	0		120
Albany Infirmary	TB	Indep	46	44		0	2		107
Pittsford 637—Rutland Co	TB	Indep							
Caverly Preventorium	TB								
Vergennes 1,705—Addison Co	Inst	State	40	10		0			517
Vermont State Industrial School	Inst								
Windsor 3,659—Windsor Co	Inst	State	6	1		0	1		76
Vermont State Prison Hosp	Inst								
Summary for Vermont									
Hospitals and sanatoriums	Number	Beds	Average Patients	Patients Admitted					
Related institutions	27	2,010	2,369	22,806					
	6	421	337	941					
Totals	33	3,391	2,706	23,747					
Included registration	0								

VIRGINIA

VIRGINIA—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Christiansburg 1,070—Montgomery Co	Gen	Indep	25	4	5	0	3		405
New Altamont Hospital	Gen								
Clifton Forge 6,839—Allegheny Co	Gen	Indus	90	65	5	0	18		2,352
Chesapeake and Ohio Rail way Hospital	Gen								
Clintwood 729—Dickenson Co	Gen	Indiv	30	8	3	0	3		2,0
Dickenson County Hospital	Gen								
Sutherland's Hospital	Gen		10	2	1	0	1		86
Coeburn 784—Wise Co	Gen	Indep	30	15		0			
Coeburn Hospital	Gen								
Dante 811—Russell Co	Gen	Indus	25	18	3	0	4	1	62
Clinchfield Hospital	Gen								
Danville 22,247—Pittsylvania Co	TB	Indep	60	54		0	3		120
Hilltop Sanatorium	Gen	Indep	100	56	10	23			2,015
Memorial Hospital	Gen		32	12	2	0			
Providence Hospital (col)	Gen								
Farmville 3,133—Prince Edward Co	Gen	Indep	50	20	10	0	5		516
Southside Community Hos pital	Gen								
Floyd 450—Floyd Co	Gen	Indiv	10	5	2	0	1		180
Dr Hart Clinic and Hospital	Gen								
Ft Humphreys—Fairfax Co	Gen	Army	60	8		0	0		335
Station Hospital	Gen								
Ft Monroe 1,263—Elizabeth City Co	Gen	Army	115	44	0	0	9	1	212
Station Hospital	Gen								
Ft Myer, 1,050—Arlington Co	Gen	Army	50	20		0	0	1	207
Station Hospital	Gen								
Franklin 2,690—Southampton Co	Gen	Indiv	22	6	2	0	1		
Railford Hospital	Gen								
Fredericksburg 6,619—Spotsylvania Co	Gen	Indep	75	48	10	23	7	1	356
Mary Washington Hospital	Gen								
Galax 2,544—Grayson Co	Gen	Indep	25	9	2	0	1		328
Galax Hospital and Clinic	Gen								
Hampton 6,882—Elizabeth City Co	Gen	Indep	65	26	10		3	1	1,093
Hampton Training School for Nurses and Dixie Hos pital	Gen								
Harrisonburg 7,232—Rockingham Co	Gen	Indep	100	70	8	42	6	3	185
Rockingham Mem Hosp	Gen								
Hopewell 11,327—Prince George Co	Gen	Indep	30	6	3	0	2		292
Community Hospital	Gen								
Hot Springs 1,010—Bath Co	Gen	Indep	13	4	4	0	4		172
Community Hospital	Gen								
Hurley 220—Buchanan Co	Gen	Indep	20	10		0			200
Knox Creek Hospital	Gen								
Langley Field—Elizabeth City Co	Gen	Army	50	24		0	0	1	102
Station Hospital	Gen								
Leesburg 1,640—Loudoun Co	Gen	Indep	30	12	6	0			
Loudoun County Hospital	Gen								
Lexington 3,702—Rockbridge Co	Gen	Indep	42	24	8	0	5		906
Stonewall Jackson Memorial Hospital	Gen								
Luray 1,459—Page Co	Gen	Indep	12	4	3	0			135
Page Memorial Hospital	Gen								
Lynchburg 40,661—Campbell Co	Gen	Indep	101	65	11	35	5	1	722
Guggenheimer Mem Hosp (Child)	Gen								
Lynchburg General Hosp	Gen								
Marshall Lodge Memorial Hospital	Gen	Frat	135	61	8	40	11	2	153
Virginia Baptist Hospital	Gen	Church	102	32	16	32	3	1	107
Marion 4,156—Smyth Co	Gen								
Southwestern State Hosp	Mental	State	1,003	1,033		0	5		332
Martinsville, 7,705—Henry Co	Gen	Indiv	52	22	4	0	3		572
Shackelford Hospital	Gen								
Nassawadox 475—Northampton Co	Gen	Counties	45	25	5	22	4		700
Northampton Accomac Memo rial Hospital	Gen								
Newport News 34,417—Warwick Co	Gen	Indiv	100	47	10	36	8	1	742
Elizabeth Buxton Hospital	Gen	Indep	70	38	0	30	0	1	571
Riverside Hospital	Gen								
Whittaker Memorial Hos pital (col)	Gen	Indep	50	11	4	10	3		430
Norfolk 129,720—Norfolk Co	TB	Indep	80	75		0	6		125
Charles R Grundy Sanat Children's Visiting Nurse Service and Clinic (Kings Daughters)	Chil	Indep	26	10		0	25	1	066
Hospital of St Vincent de Paul	Gen	Church	250	130	22	86	9	3	350
Memorial Hospital	Gen	Indep	50	20	8	23	0	1	431
Norfolk Protestant Hospi tal	Gen								
Sarah Leigh Hospital	Gen	Church	175	103	25	65	6	4	773
U S Marine Hospital	Gen	Indep	70	35	10	24	6	1	218
Norton 3,077—Wise Co	Gen	Indep	251	219		0	23	2	302
Norton Hospital	Gen								
Pearlburg 688—Giles Co	Gen	Indep	40	15	2	0	1		565
St Elizabeth's Gen Hosp	Gen								
Pennington Gap 1,553—Lee Co	Gen	Indep	35	10	2	0	5		706
Lee General Hospital	Gen								
Petersburg 28,564—Dinwiddie Co	Mental	State	2,800	2,727		0	12		612
Central State Hosp (col)	(Included in Central State Hosp)								
Medical Center Hospital	Gen	Indep	65	44	7	32		1	555
Petersburg Hospital	Gen								
Portsmouth 4,704—Norfolk Co	Gen	Church	72	42	8	25	2	1	600
Kings Daughters Hospital	Gen		927	573		0	40	6	077
Norfolk Naval Hospital	Gen	Indep	40	21	10	25	4	1	077
Parrish Memorial Hospital	Gen								
Pulaski 7,710—Pulaski Co	Gen	Indep	50	18	5	12	3		609
Pulaski Hospital	Gen								
Radford 6,227—Montgomery Co	N&M	Indiv	25	26		0	2		
St Alban's Sanatorium	N&M								
Richlands 1,333—Tazewell Co	Gen	Indiv	25	15		0	6		412
Mattie Williams Hospital	Gen								

WASHINGTON—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Bedro Woolley, 2 719—Skagit Co	Mental	State	1 507	1,436	24	5	25	3 069	
Northern State Hospital	Gen	Indep	26	10	7	0	7	3 069	
Bedro Woolley Men's Hosp	Gen	Indiv	12	2	5	0	1	110	
Sequim 534—Clallam Co	Gen	Indiv	34	12	5	0	4	330	
Sequim Prairie Hospital	Gen	Part	34	12	5	0	4	330	
Shelton, 2 091—Mason Co	Gen	Part	34	12	5	0	4	330	
Shelton General Hospital	Gen	Part	34	12	5	0	4	330	
Snohomish 2 688—Snohomish Co	TB	County	40	37	0	3	31		
Aldercrest Sanatorium	Gen	Indiv	20	4	3	0	2	172	
Snohomish General Hosp	Gen	Indiv	20	4	3	0	2	172	
Snoqualmie Falls 262—King Co	Gen	Indus	40	22	0	0	5	560	
Snoqualmie Falls Hosp	Gen	Indus	40	22	0	0	5	560	
South Bend, 1 798—Pacific Co	Gen	Indep	35	10	5	0			
South Bend General Hosp	Gen	Indep	35	10	5	0			
Spokane 11a, 514—Spokane Co	Gen	Church	227	91	80	75	14	3 482	
Deaconess Hospital	TB	County	160	111	0	5	114		
Lidgehill Sanatorium	Gen	Church	300	214	40	130	43	5 917	
Sacred Heart Hospital	Gen	Church	161	40	24	85	11	2 638	
St Luke's Hospital	Gen	Church	161	40	24	85	11	2 638	
Shriners Hospital for Crip	(Uses wards in St	Luke's Hospital)	41	4	0	0	227		
Station Hospital	Gen	Army	41	4	0	0	227		
Sumas 647—Whatcom Co	Gen	Indiv	10	8	3	0			
Merrilyn Cottage Hospital	Gen	Indiv	12	2	2	0	2	90	
Sumas General Hospital	Gen	Indiv	12	2	2	0	2	90	
Tacoma 106, 817—Pierce Co	Gen	Indiv	12	2	2	0	2	90	
Northern Pacific Beneficial Association Hospital	Gen	Indep	111	53	5	0	12	1,866	
Pierce County Hospital	Gen	County	202	107	18	0	23	2 495	
St Joseph's Hospital	Gen	Church	300	107	50	100	10	3 007	
Tuacoma General Hosp	Gen	Indep	170	73	38	11	3 385		
Tuacoma Hospital	Gen	Indian	235	225	0	12	670		
Tonasket 513—Okanogan Co	Gen	Indiv	10	4	4	0	3	124	
Tonasket Hospital	Gen	Indiv	10	4	4	0	3	124	
Toppenish 2 774—Yakima Co	TB	Indian	40	30	0	4	265		
Yakima Sanatorium	TB	Indian	40	30	0	4	265		
Vancouver 15 766—Clark Co	Gen	Indep	50	13	12	0	8	700	
Clark General Hospital	Gen	Church	125	65	14	28	8	2,201	
St Joseph's Hospital	Gen	Church	60	10	0	0	469		
Station Hospital	Gen	Army	60	10	0	0	469		
Walla Walla 1a 976—Walla Walla Co	Gen	Church	70	48	12	36	2	2 185	
St Mary's Hospital	Gen	VetAd	350	320	0	30	1 440		
Veterans Admin Hosp	Gen	VetAd	350	320	0	30	1 440		
Walla Walla Sanatorium and Hospital	Gen	Church	50	47	9	0	10	654	
Wenatchee 11 627—Chelan Co	Gen	Church	47	34	10	30	1 149		
Central Washington Deaconess Hospital	Gen	Church	70	36	17	25	0	1,823	
St Anthony's Hospital	Gen	Church	70	36	17	25	0	1,823	
Yakima 22 101—Yakima Co	Gen	Church	158	92	34	74	10	4 422	
St Elizabeth's Hospital	Gen	Church	158	92	34	74	10	4 422	
Related Institutions									
Chehalis 4 907—Lewis Co	Inst	State	27	8	0	1	464		
State Training School for Boys	Inst	State	27	8	0	1	464		
Friday Harbor 601—San Juan Co	Gen	Indiv	7	2	3	0	2	23	
Friday Harbor Hospital	Gen	Indiv	7	2	3	0	2	23	
Lakeview 22—Pierce Co	NAM	Indiv	10	5	0	1	40		
Sunnyside Sanatorium	NAM	Indiv	10	5	0	1	40		
Medical Lake 1 671—Spokane Co	VanDef	State	1 386	1 322	0		205		
State Custodial School	VanDef	State	1 386	1 322	0		205		
Monroe 1 510—Snohomish Co	Inst	County	70	5	5	0		203	
Snohomish County Hospital and Farm	Inst	County	70	5	5	0		203	
Mount Vernon 1 600—Skagit Co	Mater	Indiv	20	5	5	0	1	79	
Mount Vernon Maternity Hospital	Mater	Indiv	20	5	5	0	1	79	
Prusallup 7 094—Pierce Co	Gen	Indiv	30	10	12				
Valley Hospital	Gen	Indiv	30	10	12				
Republic 710—Kerry Co	Gen	Indiv	8	4	3	0	2	127	
Republic Hospital	Gen	Indiv	8	4	3	0	2	127	
Retell 1 000—Kitsap Co	Inst	State	124	110	0	2	204		
Washington Veterans Home and Hospital	Inst	State	124	110	0	2	204		
Ritzville 1 777—Adams Co	Gen	Indiv	12	6	3	0	60		
Ritzville General Hospital	Gen	Indiv	12	6	3	0	60		
Seattle 2 448—King Co	Conv	Indiv	12	6	3	0	2	120	
Frederick's Sanatorium	Conv	Indiv	12	6	3	0	2	120	
Portsmouth Hospital	Conv	Indiv	12	6	3	0	2	120	
Mason Sanatorium	Conv	Indiv	12	6	3	0	2	120	
Mt Baker Dietetic Boarding Home	Conv	Indiv	12	6	3	0	2	120	
Rest Haven Sanatorium	Conv	Indiv	12	6	3	0	2	120	
Seattle Convalescent Home	Conv	Indiv	12	6	3	0	2	120	
University of Washington Health Service Infirmary	Inst	State	43	3	0	7	045		
Spokane 218—Spokane Co	Inst	County	120	100	0	2			
Spokane County Infirmary	Inst	County	120	100	0	2			
Spokane 11 514—Spokane Co	Inst	County	120	100	0	2			
Rivercrest Hospital	Inst	County	120	100	0	2			
Salvation Army Women's Hospital and Home	Mater	Church	45	34	35	0	3	123	
Spokane 61—Lincoln Co	Gen	Indiv	10	2	5	0	5	40	
Spokane Hospital	Gen	Indiv	10	2	5	0	5	40	
Stadium 1 000—Pierce Co	Inst	State	43	3	0	7	045		
Tuacoma 106 817—Pierce Co	Inst	State	43	3	0	7	045		
Bellevue Sanatorium	TB	Indiv	15	New	0				
City Convalescent Hospital	Inst	City	15	3	0	4	1 205		
White Shield Home	Mater	Indep	79	50	10	0	1	205	
Tulalip 62—Snohomish Co	Gen	Indian	12	4	0	2			
Tulalip Indian School Hospital	Gen	Indian	12	4	0	2			
Vancouver 1 777—Clark Co	Inst	State	43	3	0	7	045		
Washington School for the Deaf	Inst	State	43	3	0	7	045		

WASHINGTON—Continued

Related Institutions	Type of Service	Control	Beds Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Walla Walla, 15 076—Walla Walla Co	Inst	State	25	20	0				
Washington State Penitentiary Hospital	Inst	State	25	20	0				
Yakima 22 101—Yakima Co	Gen	Indiv	15	5	10	0	2	173	
Yakima Nursing Home and Hospital	Gen	Indiv	15	5	10	0	2	173	
Summary for Washington									
Hospitals and sanatoriums	92		13 542		10 100			108 771	
Related institutions	29		2 577		2 (4)			0 047	
Totals	121		16 117		12 149			114,820	
Refused registration	17		205						

WEST VIRGINIA

Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Beckley 9 357—Raleigh Co									
Beckley Hospital	Gen	Part	175	60	10	0	25	4	654
Raleigh General Hospital	Gen	Indep	125	125	15	3	260		
Rutherford State Sanitarium	TB	State	125	125	15	3	260		
Bluefield 19 339—Mercer Co									
Bluefield Sanitarium	Gen	Indep	110	40	6	30	4	2	462
Brown's Hospital (col)	Gen	Indiv	40	27	3	0	1	1	340
Providence Hospital (col)	Gen	Indiv	25	4	3	1	125		
St Luke's Hospital	Gen	Indep	75	24	5	18	3	1	492
Buckhannon 4 374—Upshur Co									
St Joseph's Hospital	Gen	Church	36	17	0	8	2	601	
Charleston 60 405—Kanawha Co									
Charleston Gen Hosp	Gen	Indep	150	92	15	37	8	3	405
Hillcrest Sanatorium	TB	Indep	42	40	0		25		
Kanawha Valley Hospital	Gen	Indep	90	67	12	20	3	1	062
Dr Lewis Prechard Free Clinic Hospital	Gen	Church	26	20	4	0	3	709	
McMillan Hospital	Gen	Indep	90	32	10	14	2	1	925
Mountain State Hospital	Gen	Indep	70	37	10	20	4	4	412
St Francis Hospital	Gen	Church	70	30	12	18	5	1	512
Staats Hospital	Gen	Indep	40	28	4	0	3	1	021
Charles Town 2 434—Jefferson Co									
Charles Town Gen Hosp	Gen	Indep	30	6	5	0	3	255	
Clarksburg 28 806—Harrison Co									
Mason Hospital	Gen	Indep	52	24	10	18	9	940	
St Mary's Hospital	Gen	Church	125	55	12	35	10	2	044
Denmar—Pocahontas Co									
Denmar Sanitarium (col)	TB	State	85	75	0	0	3	01	
Elkins 7 345—Randolph Co									
Davis Memorial Hospital	Gen	Indep	70	50	6	18	4	1	135
Elkins City Hospital	Gen	Indiv	63	33	5				
Fairmont 23 159—Marion Co									
Cook Hospital	Gen	Indep	95	68	12	20	2	1	300
Fairmont Emerg Hosp	Gen	State	75	50	6	20	3	1	629
Glen Dale 1 493—Marshall Co									
Reynolds Memorial Hosp	Gen	Church	80	33	10	26	7	594	
Grafton 7 737—Taylor Co									
Grafton City Hospital	Gen	City	20	12	4	0			
Hinton 6 634—Summers Co									
Hinton Hospital	Gen	Indep	75	35	3	25	1	603	
Holden 2 046—Logan Co									
Holden Hospital	Gen	Indep	36	9	0	4	1	500	
Hopewell 63—Preston Co									
Conley Hospital	(Included in State Tuber Sanitarium)								
State Tuberculosis Sanit	TB	State	420	410	0			415	
Huntington 75 572—Cabell Co									
Cheapeake and Ohio Railway Hospital	Gen	Indus	110	84	20	27	4	2	550
Huntington City Hospital	Gen	City	30	15	4	0	4	204	
Huntington Mem Hosp	Gen	Indep	150	33	6	26	7	1,167	
Huntington Ortho Hosp	Ortho	Indep	65	31	0	4	496		
Moore Beckner Eye Ear and Throat Hospital	EENT	Indiv	10	3	0	0	3	600	
St Mary's Hospital	Gen	Church	60	51	10	40	12	1	917
Veterans Adminl Hospital	Gen	VetAd	210	New	0	22			
Kenova 3 680—Wayne Co									
Rife-Ferguson Hospital	Gen	Part	10	6	2	0	2	120	
Keyser 6 245—Mineral Co									
Potomac Valley Hospital	Gen	Indep	41	27	5	16	1	56	
Kimball 1 467—McDowell Co									
Henrietta Dismukes Hospital (col)	Gen	Indiv	40	25	2	0			
Lakin—Mason Co									
Lakin State Hosp (col)	Mental	State	40	25	2	0	4	1	
Logan 4 336—Logan Co									
Hatfield Lawson Hospital	Gen	Indep	10	6	2	0	2	120	
Marlinton 1 556—Pocahontas Co									
Pocahontas Mem Hospital	Gen	County	22	2	0	4			
Martinsburg 14 551—Berkeley Co									
City Hospital	Gen	Indep	42	22	5	17		720	
Kings Daughters Hospital	Gen	Indep	60	31	7				
McKendree 117—Fayette Co									
McKendree Emerg Hosp	Gen	State	70	40	8	10	2	1	064
Montgomery 2 900—Fayette Co									
Coal Valley Hospital	Gen	Indep	60	54	3	27	2	074	
Morgantown 10 156—Monongalia Co									
City Hospital	Gen	Indiv	50	12	4	8		115	
Eastmont Tuber Sanat	TB	Indep	50	50	0				
Monongalia County Hosp	Gen	County	80	40	8	20	8	1	500
Moundsville 14 411—Marshall Co									
Grand View Sanatorium	TB	County	1	20	0	1	07		
Mullens 2 366—Wyoming Co									
Mullens Hospital	Gen	Indiv	50	10	0	4			
New Martinsville 2 514—Weitzel Co									
Weitzel County Hospital	Gen	County	20	5	4	0	3	2	500

WEST VIRGINIA—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated Capacity	Average Patients	Basinsets	Student Nurses	RNs for Nursing	Patients Admitted
Oak Hill, 2,076—Tayette Co	Gen	Part	50	18	5	0	4	1,281
Oak Hill Hospital								
Parkersburg, 20,023—Wood Co	Gen	City	60	42	12	26	4	1,227
Camden Clark Memorial Hospital								
St Joseph's Hospital	Gen	Church	100	51	10	32	4	1,333
Princeton, 6,955—Mercer Co	Gen	Indep	48	25	4	0	4	859
Mercer Memorial Hospital								
Princeton Hospital	Gen	Indep	40	20	4	13		583
Richwood, 5,720—Nicholas Co	Gen	Indep	50	10	4	0	6	710
McLung Hospital								
Sacred Heart Hospital	Gen	Church	34	15	0	3	1	456
Renovate, 2,254—Greenbrier Co	Gen	Indep	50	30	2	12	3	639
Greenbrier Valley Hospital								
Sistersville, 3,072—Tyler Co	Gen	Indep	20	10	4	0	3	350
Sistersville General Hospital								
South Charleston, 5,104—Kanawha Co	Gen	Indiv	25	3	4	0	2	200
Dunn Hospital								
Welch, 5,376—McDowell Co	Gen	Indep	50	25	6	0	7	945
Grace Hospital								
Stevens Clinic Hospital	Gen	Indep	70	36	4	0	7	1,534
Welch Emerg Hospital	Gen	State	125	55	5	18	5	2,440
Weston, 8,646—Jewell Co	Gen	Part	30	8	0	0	4	300
City Hospital								
General Hospital	Gen	Indiv	20	11	4	7	3	402
Wheeling, 61,659—Ohio Co	Gen	Indep	240	110	70	79	21	4,267
Ohio Valley General Hospital								
Wheeling Hospital	Gen	Church	300	97	25	73	14	3,544
Williamson, 6,410—Mingo Co	Gen	Indep	54	37	4	20	4	1,426
Williamson Mem Hospital								
Related Institutions								
Ihm Grove,—Ohio Co	Inst	County	48	48				
Ohio County Home Hospital								
Huntington, 75,572—Cabell Co	Mental	State	970	837			4	351
Huntington State Hospital								
Milton, 1,307—Cabell Co	Ortho	Indep	30	30				
Morris Memorial Hospital								
for Crippled Children								
Moundsville, 14,411—Marshall Co	Inst	State	30	17				435
West Virginia Penitentiary Hospital								
Romney, 1,441—Hampshire Co	Inst	State	15	3				
West Virginia Schools for Deaf and Blind								
St Mary's, 2,182—Pleasants Co	MenDef	State	80	56				50
West Virginia Training School								
Spencer, 2,493—Roane Co	Mental	State	935	825			5	304
Spencer State Hospital								
Weston, 8,046—Lewis Co	Mental	State	1,510	1,360			4	575
Weston State Hospital								
Wheeling, 61,659—Ohio Co	TB	County	17	10		1	1	47
Ohio County Tuberculosis Sanatorium								
Summary for West Virginia								
Hospitals and sanatoriums	Number	Beds	Average Patients	Patients Admitted				
Related Institutions	9	3,635	3,412	1,888				
Totals	78	9,080	6,582	82,416				
Refused registration	2	52						

WISCONSIN

Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated Capacity	Average Patients	Basinsets	Student Nurses	RNs for Nursing	Patients Admitted
Algoma, 2,202—Kewaunee Co	Gen	Indep	10	4	4	0	1	124
Algoma Hospital								
Amery, 1,354—Polk Co	Gen	Indep	15	4	5	0	2	187
Polk County Hospital								
Antigo, 8,610—Langlade Co	Gen	Indiv	18	6	2	0	2	210
Antigo Hospital								
City Hospital	Gen	Indiv	25	8				
Appleton, 25,267—Outagamie Co	Gen	Church	200	82	30	0	12	3,185
St Elizabeth Hospital								
Ashland, 10,622—Ashland Co	Gen	Indep	07	46	8			
Ashland General Hospital								
St Joseph's Hospital	Gen	Church	134	81	16	53	13	4,319
Baraboo, 5,545—Sauk Co	Gen	Church	25	20	7	0		815
St Mary's Ringling Hosp								
Barron, 1,803—Barron Co	Gen	Part	10	7	4	0	1	220
River Side Hospital								
Peaver Dam, 9,867—Dodge Co	Gen	Church	20	16	8	5	4	757
Lutheran Deaconess Hosp								
Beloit, 23,611—Rock Co	Gen	City	70	38	20	0	20	1,756
Beloit Municipal Hospital								
Berlin, 4,106—Green Lake Co	Gen	Indep	15	7	6	0	3	210
Yates Memorial Hospital								
Poseobel, 1,762—Grant Co	Gen	Part	22	10	2	0	3	373
Brookside Parker Hospital								
Burlington, 4,114—Racine Co	Gen	Indep	25	14	10	0	0	610
Burlington Memorial Hosp								
Chippewa Falls, 9,539—Chippewa Co	Gen	Church	170	51	17	0	8	2,463
St Joseph's Hospital								
Columbus, 2,514—Columbia Co	Gen	Church	40	20	6	0	3	621
St Mary's Hospital								
Cumberland, 1,532—Barron Co	Gen	Part	30	10	6	0	3	446
Cumberland Hospital								
Dodgeville, 1,937—Jowa Co	Gen	Indep	24	13	5	0		
Dodgeville General Hospital								
St Joseph's Hospital	Gen	Church	60	25	15	0	5	950

WISCONSIN—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Fau Claire, 26,287—Fau Claire Co								
Luther Hospital*o	Gen	Indep	135	74	20	67	7	2,277
Mt Washington Sanatorium	TB	County	58	59			0	4
Sacred Heart Hospital*o	Gen	Church	225	91	16	45	0	1,100
Edgerton, 2,000—Rock Co								
Edgerton Memorial Hospital	Gen	City	16	7	6	0	4	625
Fikhorn, 2,340—Walworth Co								
Walworth County Hospital	Gen	County	40	27	11	0	8	775
Fond du Lac, 26,440—Fond du Lac Co								
St Agnes Hospital*o	Gen	Church	225	168	25	84	13	4,426
Ft Atkinson, 6,793—Jefferson Co								
Ft Atkinson General Hosp	Gen	Indiv	15	7	5	0		312
Frederic, 680—Polk Co								
Frederic Hospital	Gen	Indiv	15	7	2	0	1	100
Grantsburg, 777—Burnett Co								
Community Hospital	Gen	Indep	16	9	4	0	2	316
Green Bay, 37,415—Brown Co								
Bellin Memorial Hospital*o	Gen	Church	70	40	10	71	3	1,460
St Mary's Mothers' and Infants Home and St Mary's Hospital*o								
St Vincent's Hospital	Gen	Church	120	71	20	48	14	3,280
Hartford, 7,754—Washington Co	Gen	Church	200	163	23	0	28	6,835
St Joseph's Hospital	Gen	Church	50	15	8	0	5	503
Hawthorne, 681—Douglas Co								
Middle River Sanatorium	TB	County	145	133		0	20	108
Hillsboro, 672—Vernon Co								
Hansberry Hospital	Gen	Indiv	25	10	5	0	2	363
Hudson, 2,725—St Croix Co								
Hudson Sanatorium	Gen	Indiv	35	20	2			
Janesville, 21,028—Rock Co								
Mercy Hospital*o	Gen	Church	120	60	30	53	8	2,000
Pinchurst Sanatorium	TB	County	70	67		0	7	84
Jefferson, 2,630—Jefferson Co								
Forest Lawn Sanatorium	TB	County	52	51		0	3	46
Kenosha, 60,262—Kenosha Co								
Kenosha Hospital	Gen	Indep	150	56	30	21	13	1,973
St Catharine's Hospital and Sanitarium*o	Gen	Church	45	37	15	0	8	1,444
Willowbrook Sanatorium	TB	County	42	40		0	3	33
Keshena, 270—Shawano Co								
Keshena Indian Hospital	Gen	Indian	60	27	0	0	4	728
La Crosse, 39,614—La Crosse Co								
Grandview Hospital*o	Gen	Indep	106	68	10	41	0	1,723
La Crosse Hospital*o	Gen	Indep	40	37	12	0	12	1,568
La Crosse Lutheran Hosp *o	Gen	Church	140	59	0	0	22	2,262
St Francis Hospital*o*o	Gen	Church	275	169	40	78	20	4,077
Ladysmith, 3,493—Rusk Co								
St Mary's Hospital	Gen	Church	35	17	8	15	5	685
Lancaster, 2,432—Grant Co								
Doolittle Hospital	Gen	Indiv	15	6	3	0	2	220
Laona, 1,709—Forest Co								
Ovitz Hospital	Gen	Indus	16	7	4	0	2	205
Little Chute, 2,533—Outagamie Co								
Riverview Sanatorium*o	TB	County	65	58		0	5	124
Madison, 57,699—Dane Co								
Lake View Sanatorium*o	TB	County	103	101		10	97	
Madison General Hospital*o	Gen	Indep	154	86	20	60	12	3,011
Methodist Hospital*o*o	Gen	Church	110	63	10	60	10	2,021
Morningside Sanatorium	TB	Indep	45	40		0	4	43
Normandale	N.A.M.	Indep	30	20		0	1	118
St Mary's Hospital*o*o	Gen	Church	150	100	30	70	24	4,068
State of Wisconsin General Hospital*o*o	Gen	State	630	604	22	45	185	8,708
Wisconsin Orthopedic Hospital for Children	(Included in State of Wisconsin Gen Hosp)							
Wisconsin Psychiatric Hosp	(Included in State of Wisconsin Gen Hosp)							
Manitowoc, 22,803—Manitowoc Co								
Holy Family Hospital*o	Gen	Church	125	60	20	40	18	2,126
Marquette, 13,734—Marquette Co								
Marquette and Menominee Hospital*o	Gen	Indep	60	28	12	0		665
Marshfield, 8,778—Wood Co								
St Joseph's Hospital*o*o	Gen	Church	100	61	15	62	0	3,163
Mauston, 2,107—Juneau Co								
Mauston Hospital	Gen	Indep	50	18	7			
Medford, 1,018—Taylor Co								
Medford Clinic Hospital	Gen	Indep	34	10	8	0	2	418
Mendota, 112—Dane Co								
Wisconsin Memorial Hosp *o	Mental	State	300	272		0	4	107
Wisconsin State Hospital for Insane*o	Mental	State	874	874		0	4	677
Menomonie, 5,595—Dunn Co								
Menomonie City Hospital	Gen	City	22	15	7	0	7	563
Merrill, 8,458—Lincoln Co								
Holy Cross Hospital	Gen	Church	50	15	11	0	4	660
Lincoln County Hospital	Gen	County	30	27	4	0	1	260
Milwaukee, 578,240—Milwaukee Co								
Columbia Hospital*o*o	Gen	Indep	189	67	40	72	16	2,602
Evangelical Deaconess Hospital*o	Gen	Church	150	88	26	60	14	3,209
Johnston Emergency Hospital*o	Emerg	City	25	30	4	0	0	0,407
Lincoln Hospital	Gen	Indiv	25	0		0		
Dr Lynch's Sanatorium*o	Diab	Indiv	15	10		0	0	400
Milwaukee Children's Hospital*o*o	Chil	Indep	150	132		14	3,419	
Milwaukee Co Gen Hospital	(Included in Milwaukee County General Hospital, Wauwatosa)							
Dispensary Emergency Unit	Gen	Indep	105	75	35	70	10	2,262
Milwaukee General Hospital								
Milwaukee Hospital "The Passavant"*o	Gen	Church	215	139	36	140	29	4,594
Misericordia Hospital*o	Gen	Church	110	71	40	46	16	2,671
Mt Sinai Hospital*o*o	Gen	Indep	142	97	28	79	3	3,705
Roger Williams Hospital	Gen	Church	40	25	6	15	5	1,132
Sacred Heart Sanitarium*o	Gen	Church	325	150		41		2,317
St Anthony's Hospital*o	Gen	Church	40	18	12	0	0	862

WISCONSIN—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
St. Joseph's Hospital**	Gen	Church	325	157	70	120	11	5,376	
St. Luke's Hospital*	Gen	Church	100	41	17	0	19	1,771	
St. Mary's Hill Sanitarium	N&M	Church	120	70	0	0	0	481	
St. Mary's Hospital*	Gen	Church	226	124	40	98	16	5,080	
Shorewood Hospital Sanit	N&M	Indep	30	31	0	0	5	215	
South Side Hospital	Gen	Indep	30	5	10	0	3	260	
South View Isolation Hos	Iso	City	250	63	0	0	18	891	
West Side Hospital	Gen	Indep	25	0	5	0	3	323	
Monroe 5 015—Green Co									
Evangelical Deaconess Hos	Gen	Church	30	20	12	0	5	753	
Mt. Horeb 1 42—Dane Co	Gen	Indiv	12	4	4	0	3	763	
Buckner Hospital									
Neenah 9 151—Winnebago Co									
Theda Clark Memorial Hos	Gen	Indep	65	43	17	31	7	1,893	
New London 4 661—Waupesa Co									
Borchardt Clinic and Memo	Gen	Indiv	16	4	7	0	2	144	
rial Hospital									
New London Community	Gen	Church	60	12	8	0	6	554	
Hospital									
Niagara 2 033—Marquette Co	Gen	Indus	12	7	4	0	4	249	
Oconomowoc 4 109—Waukesha Co	N&M	Indep	76	48	0	0	0	77	
Oconomowoc Health Resort									
Oconto 5 030—Oconto Co									
Oconto County and City	Gen	Indep	20	6	6	0	3	519	
Hospital									
Oconto Falls 1 921—Oconto Co	Gen	Indep	10	5	4	0	2	201	
Oconto Falls Hospital									
Onalaska 1 408—La Crosse Co	TB	County	60	66	0	7	73		
Oak Forest Sanatorium									
Oshkosh 40 108—Winnebago Co	Gen	Church	150	00	20	70	10	3,391	
Mercy and St. Mary's Hospi									
tals									
Park Falls 3 036—Price Co	Gen	Indiv	25	6	4	0	2	465	
Park Falls Hospital									
Pewaukee 1 067—Waukesha Co	TB	County	38	40	0	4	41		
Oak Sanatorium									
Platteville 4 047—Grant Co	Gen	Indiv	20	7	4	0	3	198	
Andrew Hospital	Gen	Indiv	20	11	6	0	4	203	
Wilson Cunningham Hosp	Gen								
Plymouth 3 882—Sheboygan Co	Gen	Indep	36	17	8	8	4	567	
Rocky Knoll Sanatorium	TB	County	86	86	0	6	96		
Portage, 6 308—Columbia Co	Gen	Church	60	20	8	0	1	800	
St. Saviour's General Hosp									
Poynette 678—Columbia Co	Gen	Indiv	11	2	2	0	1	81	
Poynette Hospital									
Prairie du Chien 3 943—Crawford Co	Gen	Indep	60	28	6	0	6	1,100	
Prairie du Chien Sanitarium									
Hospital									
Prescott 755—Pierce Co	Gen	Indiv	20	14	4	0	3	103	
Dr. Louis Jones Hospital									
Pureair (Bayfield P. O.)—Bayfield Co	IB	County	72	68	5	4	51		
Laurier Sanatorium									
Racine 67 542—Racine Co	Gen	Church	180	60	40	30	10	1,874	
St. Luke's Hospital	Gen	Church	80	40	24	0	9	2,477	
St. Mary's Hospital	TB	County	60	60	0	4	46		
Sunny Rest Sanatorium									
Rhinelander 8 010—Oneida Co	Gen	Church	60	34	12	0	9	957	
St. Mary's Hospital									
Rice Lake 5 177—Barron Co	Gen	Church	33	14	5	0	2	593	
Lakeside Methodist Hospital	Gen	Church	32	16	8	0	8	761	
St. Joseph's Hospital									
Richland Center 3 632—Richland Co	Gen	Indep	40	22	7	0	6	1,000	
Richland Hospital									
River Falls 2 363—Pierce Co	Gen	City	14	5	4	0	2	509	
City Hospital									
St. Croix Falls 942—Polk Co	Gen	Indiv	20	14	6	0	3		
St. Croix Falls Hospital									
Shawano 4 188—Shawano Co	Gen	Cy & Co	33	18	8	0	8	822	
Shawano Municipal Hospital									
Sheboygan 39 201—Sheboygan Co	Gen	Church	130	60	27	0	30	2,357	
St. Nicholas Hospital	Gen	Indep	92	New	27	0	10		
Sheboygan Memorial Ho p	Gen								
Shullsburg, 1 041—Lafayette Co	Gen	Indiv	15	2	2	0	3	72	
Dr. Pauls Hospital									
South Milwaukee 10 000—Milwaukee Co	Gen	Indiv	13	1	7	4	1	232	
South Milwaukee Hospital									
Sparta 4 941—Monroe Co	Gen	Church	70	40	11	12	5	1,646	
St. Mary's Hospital									
Staupley 1 888—Chippewa Co	Gen	Indep	10	0	6	0	3		
Victory Hospital									
Stearns 10—Waukesha Co	TB	State	220	216	0	0	201		
Wisconsin State Sanat									
Stevens 1 017—Portage Co	IB	Indep	60	43	0	4	88		
River Falls Sanatorium	Gen	Church	60	40	10	0	1	1,394	
St. Michael's Hospital									
Stoughton 4 49—Dane Co	Gen	Indep	17	11	8	0	3	500	
Stoughton Community Hos									
pital									
Sturgeon Bay 4 88—Door Co	Gen	Indiv	20	0	4	0	2	403	
Richland Ho pital	Gen	Indiv	15	11	0	0	1	200	
Lac um Hospital									
Superior 30 118—Douglas Co	Gen	Church	12	0	5	0	0	225	
Good Samaritan Ho pital	Gen	Church	10	0	13	40	0	1,764	
St. Francis Ho pital	Gen	Church	42	1	6	0	0	420	
St. Mary's Ho pital	Gen	Church	3	4	10	0	10	644	
Tomahawk 2 919—Lincoln Co	Gen	City	14	4	0	0	1	120	
Sacred Heart Ho pital									
Two Rivers 10 000—Manitowish Co	Gen	Indiv	20	0	4	0	2	403	
Two Rivers Municipal Ho	Gen	Indiv	15	11	0	0	1	200	
pital									
Washington 3 33—Bayfield Co	Gen	Indiv	20	0	4	0	2	403	
Waikana Ho pital									

WISCONSIN—Continued

Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Watertown 10 018—Jefferson Co									
St Mary's Hospital	Gen	Church	50	31	10	0	12		997
Waukesha, 17,170—Waukesha Co	IntMed	Indep	75	35		0			532
The Spa	Gen	City	66	32	18	0	11	1	923
Waukesha Municipal Hosp	N&M	Indep	50	30		0			
Waukesha Springs Sanit									
Waupaca 3 131—Waupaca Co	Gen	Indiv	12	4		0	2		110
Christofferson Hospital									
Waupun 5 768—Fond du Lac Co									
Central State Hospital for Insane	Mental	State	206	343		0	1		123
Wausau 23 758—Marathon Co									
Mount View Marathon Co	TB	County	66	63		8	5		78
Tuberculosis Sanatorium	Gen	Church	120	66	18	25	16	2	417
St Mary's Hospital	Gen	Indep	95	49	15	34	14	1	710
Wausau Memorial Hosp									
Wauwatosa, 21 194—Milwaukee Co									
Milwaukee Asylum for Chronic Insane	Mental	County	1,429	1,410		0			184
Milwaukee County General Hospital	Gen	County	1 000	712	75	93	103	13	948
Milwaukee Hospital for Mental Diseases	Mental	County	767	800		0			474
Milwaukee Sanitarium	N&M	Indep	135	128		0	8		197
Milwaukee Sanatorium	TB	County	375	375		0	16		610
West Bend 4 760—Washington Co									
St Joseph's Community Hospital	Gen	Church	25	10	4	0			3-5
West DePere 4 800—Brown Co	TB	County	88	78		0	6		134
Hickory Grove Sanatorium									
Whitehall 915—Trempealeau Co	Gen	Indep	30	17	4	0	6		670
Whitehall Community Hosp									
Whitelaw 269—Manitowoc Co	TB	County	45	44		0	4		74
Maple Crest Sanatorium									
Winnebago 1 120—Winnebago Co									
Northern Hospital for the Insane	Mental	State	856	821		0	6		784
Sunny View Sanatorium	TB	County	91	92		0	7		98
Wisconsin Rapids 8 726—Wood Co	Gen	Indep	85	2	10	0	12		888
Riverview Hospital									
Related Institutions									
Antigo 8 610—Langlade Co									
Dr Bloor's Hospital	Gen	Indiv	8	1	2	0	2		24
Appleton 25 267—Outagamie Co									
Outagamie County Asylum for Chronic Insane	Mental	County	185	180		0			15
Chippewa Falls 9 530—Chippewa Co									
Chippewa County Chronic Insane Asylum	Mental	County	260	216		0			42
Northern Wisconsin Colony and Training School	MenDef	State	1 273	1,375		0	2		322
Dodgeville 1 937—Iowa Co									
Iowa County Insane Asylum	Mental	County	100	126		0			
Dousman 206—Waukesha Co									
Wisconsin Masonic Home and O E S Hospital	Inst	Frat	18	10		0	1		34
Eau Claire 26 287—Fau Claire Co									
Eau Claire County Insane Asylum	Mental	County	205	193		0			16
Elkhorn 2 340—Walworth Co									
Walworth County Hospital	Mental	County	120	115		0			2
Ellsworth 1 124—Pierce Co									
Ellsworth Hospital	Gen	Indiv	8	5	4	0	2		225
Fond du Lac 20 449—Fond du Lac Co									
Fond du Lac County Insane Asylum	Mental	County	260	203		0	0		23
Friendship 438—Adams Co									
Friendship Hospital	Gen	Part	10	New	4	0			
Green Bay 37 415—Brown Co									
Brown Co Insane Asylum	Mental	County	100	142		0	0		20
Wisconsin State Reformatory Hospital	Inst	State	24	1		0			34
Itasca 315—Douglas Co									
Douglas County Asylum Home and Sanatorium	Mental	County	207	202		0	0		24
Janesville 21 628—Rock Co									
Detention Hospital	Iso	City	7			0	0		4
Rock County Hospital	Mental	County	210	108		0	0		24
Jefferson 2 630—Jefferson Co									
Jefferson County Asylum for Chronic Insane	Mental	County	184	160		0			14
St Coletta Institute	MenDef	Church	200	220		0			25
Juneau 1 154—Dodge Co									
Dodge County Insane Asylum and Poor House	Mental	County	190	186		0	0		1
Kewaunee 2 403—Kewaunee Co									
Dana and Dockry Hospital	Gen	Part	8	2	2	0			0
Lake Geneva, 3 073—Walworth Co									
Crane Farms Sanatorium	Conv	Indus	16	4		0	1		60
Lake Tomahawk 60—Oneida Co									
Lake Tomahawk State Camp for Tuberculous Conv	TB	State	40	40		0	0		82
Lancaster 2 432—Grant Co									
Godfrey Hospital	Gen	Part	7	4	2	0			
Grant County Asylum	Mental	County	270	200		0	0		
Madison 57 000—Dane Co									
East Washington Hospital	Iso	City	50	7		0	4		151
Manitowoc 2 000—Manitowoc Co									
Manitowoc County Insane Asylum	Mental	County	200	195		0	0		
Marshall 8 775—Wood Co									
Wood County Asylum for Chronic Insane	Mental	County	220	215		0			
Menomonie 5 000—Dunn Co									
Dunn County Asylum	Mental	County	140	100		0	0		

WISCONSIN—Continued

Related Institutions	Type of Service	Control	Beds, Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Milwaukee, 578,249—Milwaukee Co	Incur	Church	32	32	0				
Layton Home	Gen	Indiv	20	5	0				
Ogden Hospital	Inst	Vet Ad	1,262	1,005	0			4	605
Veterans Admin Home	Gen	Indiv	6	1	0				07
Mondovi, 1,627—Buffalo Co									
Mondovi Hospital	Gen	Indiv	6	1	0				07
Monroe, 5,015—Green Co									
Green County Asylum	Mental	County	102	176	0				13
New Richmond, 2,112—St Croix Co									
St Croix County Asylum for Chronic Insane	Mental	County	160	148	0	0			11
Oshkosh, 40,108—Winnebago Co									
Alexian Brothers Hospital	N&M	Church	85	55	0	5			52
Owen, 1,102—Clark Co									
Clark County Asylum	Mental	County	310	310	0				
Peshigo, 1,579—Marinette Co									
Marinette County Insane Asylum	Mental	County	194	105	0				13
Platteville, 4,047—Grant Co									
Schilling Residence Hospital	Gen	Indiv	8	New	1	0	3		
Racine, 67,542—Racine Co									
Lincoln Memorial Hospital for Communicable Diseases	Iso TB	City	48	22	3	0	3	2	9
Racine County Asylum	Mental	County	261	240	0	2			36
Reedsburg, 2,967—Sauk Co									
Sauk County Asylum	Mental	County	230	208	0	0			35
Riehlend Center, 3,632—Riehlend									
Riehlend County Asylum for Chronic Insane	Mental	County	122	117	0				11
Shawano, 4,188—Shawano Co									
Shawano County Insane Asylum	Mental	County	185	181	0	0			11
Sheboygan, 39,251—Sheboygan Co									
Sheboygan County Asylum for Chronic Insane	Mental	County	200	202	0				
Sparta, 4,949—Monroe Co									
Monroe Co Insane Asylum	Mental	County	114	100	0	0			14
Superior, 36,113—Douglas Co									
Isolation Hospital	Iso	City	24	1	0	1			20
Taycheedah, 1,465—Fond du Lac Co									
Wisconsin Industrial Home for Women	Inst	State	4	2	12	0	1		92
Tomah, 3,354—Monroe Co									
Tomah Indian School Hosp	Gen	Indian	15	7	0	1			324
Union Grove, 755—Racine Co									
Southern Wisconsin Colony and Training School	Men Def	State	661	620	0	1			80
Verona, 455—Dane Co									
Dane County Asylum for Chronic Insane	Mental	County	277	230	0				
Viroqua, 2,792—Vernon Co									
Vernon County Asylum	Mental	County	128	125	0	1			1
Wabeno, 2,168—Forest Co									
Wabeno Spertown Hospital	Gen	Part	8	2	4	0	2		99
Watertown, 10,013—Jefferson Co									
Bethesda Lutheran Home for Feeble-minded and Epilep	Men Def	Church	380	360					44
Waukesha, 17,176—Waukesha Co									
Milwaukee Children's Hosp	Conv	Indep	50	40	0				110
Convalescent Home									
Waukesha County Asylum for Chronic Insane	Mental	County	210	208	0				53
Wisconsin Industrial School for Boys	Inst	State	15	5	0	1			
Waupun, 5,768—Fond du Lac Co									
Drs Clark and Swartz Hosp	Gen	Part	7	5	4	0	2		140
Wisconsin State Prison Hospital	Inst	State	19	12	0	0			270
Wausau, 23,758—Marathon Co									
Marathon County Asylum for Chronic Insane	Mental	County	189	105	0	0			17
Marathon County Home and Hospital	Inst	County	50	45	0	0			140
Wauwatosa, 21,104—Milwaukee Co									
Blue Mound Preventorium	TB	County	116	96	0	3			111
Milwaukee County Home for Children	Inst	County	60	50	0			1	060
St Camillus Hospital	Incur	Church	70	70	0				
Salvation Army Rescue Home	Mater	Church	9	5	15	0	2		102
West Bend, 4,760—Washington Co									
Washington County Asylum for Chronic Insane	Mental	County	150	140	0	0			11
West Salem, 1,011—La Crosse Co									
La Crosse County Asylum for Insane	Mental	County	245	245	0				25
Weyauwega, 1,067—Waupaca Co									
Waupaca Co Insane Asylum	Mental	County	175	148	0	0			8
Whitehall, 915—Trempealeau Co									
Trempealeau County Asylum for Chronic Insane	Mental	County	134	105	0	0			19
Winnebago, 1,120—Winnebago Co									
Winnebago County Asylum	Mental	County	249	230	0	0			18
Wisconsin Veterans Home, 117—Waupaca Co									
Grand Army Home for Veterans	Inst	State	480	140	0	3			443
Wyoena, 480—Columbia Co									
Columbia County Asylum	Mental	County	220	175	0	0			38
Summary for Wisconsin									
Hospitals and sanatoriums	Number	Beds	Average Patients	Patients Admitted					
Related institutions	158	17,182	12,603	203,023					
	71	12,054	10,737	10,022					
Totals	229	29,236	23,340	213,045					
Refused registration	9	349							

WYOMING

Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Basin, 603—Big Horn Co									
Basin Hospital	Gen	Indep	15	3	2	0			
Wyoming Tuber Sanat	TB	State	33	26	0	2			27
Burns, 216—Laramie Co									
Burns Hospital	Gen	Part	15	4	5	0	3		135
Casper, 16,619—Natrona Co									
Memorial Hospital of Natrona County	Gen	County	100	80	24	24	8		1,527
Cheyenne, 17,361—Laramie Co									
Memorial Hospital of Laramie County	Gen	County	117	01	15	29	10		1,770
Douglas, 1,917—Converse Co									
Douglas Hospital	Gen	Indiv	18	9	4	0	3		319
Evans, 3,075—Uinta Co									
Wyoming State Hospital	Mental	State	310	460	0	4			102
Ft Warren, 22—Laramie Co									
Station Hospital	Gen	Army	100	74	4	0	11		2,00
Ft Washakie, 62—Fremont Co									
Shoshone Indian Hospital	Gen	Indian	25	10	10	0	2		365
Gebo, 894—Hot Springs Co									
Gebo Hospital	Gen	Indep	12	0	3	0	2		200
Hanna, 1,483—Carbon Co									
Hanna Hospital	Gen	Indus	20	5	3	0			
Jackson, 533—Teton Co									
St John's Hospital	Gen	Church	25	8	4	0	5		377
Kemmerer, 1,884—Lincoln Co									
Lincoln Co Miner's Hosp	Gen	Indep	30	12	5	0	4		411
Lander, 1,826—Fremont Co									
Bishop Randall Hospital	Gen	Church	20	6	0	0	3		212
Midwest, 2,122—Natrona Co									
Midwest Hospital	Gen	Indus	25	11	3	0	3		91
Powell, 1,156—Park Co									
Whitlock Hospital	Gen	Indiv	25	5	4	0	3		324
Rock Springs, 8,440—Sweetwater Co									
Wyoming General Hosp	Gen	State	100	41	8	26	6	1	111
Sheridan, 8,536—Sheridan Co									
Sheridan Co Mem Hosp	Gen	County	65	30	11	20	4	1	288
Veterans Admin Hospital	Mental	Vet Ad	488	445	0	15			127
Shoshoni, 263—Fremont Co									
Dr Jewell's Hospital	Gen	Indiv	11	2	3	0	1		61
Thermopolis, 2,129—Hot Springs									
Hopewell Hospital	Gen	Indep	65	10	10	0			
Wheatland, 1,097—Platte Co									
Wheatland General Hosp	Gen	Indep	55	52	7	25	5		2,251
Worland, 1,461—Washakie Co									
Dr Grays Hospital	Gen	Indiv	11	4	2	0	1		40
Related institutions									
Cheyenne, 17,361—Laramie Co									
Laramie Co Isolation Hosp	Iso	County	12	6	0	0			10
Gillette, 1,340—Campbell Co									
Rooney Hospital	Gen	Indiv	15	0	6	0	3		404
Greeb, 1,806—Big Horn Co									
St Luke's Hospital	Gen	Indiv	10	3	2	0	1		140
Lander, 1,826—Fremont Co									
Wyoming State Training School	Men Def	State	273	233	0	2			81
Lovell, 1,857—Big Horn Co									
Lovell Hospital	Gen	Indiv	0	2	2	0	2		134
Thermopolis, 2,129—Hot Springs Co									
Carter General Hospital	Gen	Indiv	10	2	1	0			
McGannon Sanitarium	Gen	Indiv	20	10	1	0			40
Summary for Wyoming									
Hospitals and sanatoriums	Number	Beds	Average Patients	Patients Admitted					
Related institutions	23	1,835	1,34	14,279					
	7	346	265	809					
Totals	30	2,181	1,609	15,088					
Refused registration	2	85							

ALASKA

Hospitals, Sanatoriums and Related Institutions	Type of Service	Control	Beds, Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted
Aklak, 228									
U S Hosp for Natives	Gen	Fed	12	4	2	0	2		84
Anchorage, 2,277									
Anchorage Base Hospital	Gen	Fed	26	13	8	0	4		1,001
Cordova, 980									
Cordova General Hospital	Gen	Indiv	20	8	4	0	3		182
Fairbanks, 2,101									
St Joseph's Hospital	Gen	Church	20	12	3	0	3		412
Ft Yukon, 304									
Hudson Stuck Mem Hosp	Gen	Church	30	20	1	0			
Haines, 344									
Station Hospital	Gen	Army	10	4					134
Juneau, 4,043									
St Ann's Hospital	Gen	Church	50	10	8	0	8		610
U S Hosp for Natives	Gen, TB	Fed	53	10	5	0			
Kennecott, 217									
Kennecott Copper Corporation Hospital	Gen	Indus	12	5	3	0	3		112
Ketchikan, 3,796									
Ketchikan General Hospital	Gen	Church	40	11	8	0			
Nome, 1,213									
Maynard Columbus Hosp	Gen	Church	20	7			2		145
Petersburg, 1,252									
Petersburg General Hosp	Gen	City	9	3	2	0	2		115
Point Barrow, 82									
Presbyterian Hospital	Gen	Church	12	10	4				76

HAWAII—Continued

HAWAII—Continued										
Hospitals Sanatoriums and Related Institutions	Type of Service	Control	Beds, Rated	Capacity	Average Patients	Basinets	Student Nurses	RNs for Nursing	Patients Admitted	
Panahau, 536—Hawaii Co Phaehuu Plantation pany Ltd Hospitalo	Com	Indus	Indus	12	5	0	1	154		
Panuallo 1,233—Hawaii Co Pnuallo Hospitalo		Indus	Indus	12	8	0		193		
Pohala 290—Hawaii Co Hawailan Agricultural pany Hospitalo	Com	Gen	Indus	10	15	0	0	2	484	
Pala, 4 171—Maul Co Maul Agricultural Company's Pala Hospitalo	s	Gen	Indus	103	61	10	0			
Pearl City 1071—Honolulu Co Walunno Home for Feeble minded Persons		Men	Def Territ	217	190	0			14	
Pearl Harbor 260—Honolulu Co U S Naval Hospitalo		Gen	Navy	235	129	0	7	1,117		
Pepeekeo 520—Hawaii Co Pepeekeo Hospital		Indus	Indus	33	16					
Pukoo, 50—Maul Co Walapue Hospital		Gen	County	20	5	2	0			
Puunene 4 680—Maul Co Puunene Hospitalo		Gen	Indus	100	66	10	0	5	2 966	
Schofield Barracks 4 250—Honolulu Co Station Hospitalo		Gen	Army	350	264	12	0	27	6 772	
Walalua 4 511—Honolulu Co Walalua Agricultural pany Ltd Hospitalo	Com	Gen	Indus	36	17	4	0	2	876	
Walluku 6 998—Maul Co Malulani Hospital		Gen	County	87	63	11	0	7	1 187	
Walohinu 100—Hawaii Co Kaibane Memorial Hospital		Gen	County	20	6	2	0	2	201	
Waipahu 5 874—Honolulu Co Onhu Sugar Company Ltd Hospitalo		Gen	Indus	00	44	8	0	7	1,400	
Summary for Hawaii Hospitals sanatoriums and related institutions			Number	Beds	Average Patients		Patients Admitted			
			45	4 666	3 862		39 178			

PHILIPPINE ISLANDS

[illegible]

Key to symbols and abbreviations is on page 911

PHILIPPINE ISLANDS—Continued

Hospitals Sanatoriums and Related Institutions	Type of Service	Control	Beds, Rated	Capacity	Average Patients	Basinsets	Student Nurses	RNs for Nursing	Patients Admitted
Dumaguete, 6,227—Oriental Negros Co	Gen	Church	50	27	5	0	*		
Dumaguete Mission Hosp o	Gen	Church	50	27	5	0	*		
1st Stotsenburg, —Pampanga Co	Gen	Army	83	20	3	0	0	1,853	
Station Hospital	Gen	Army	220	78		0			
Guadalupe, —Rizal Co	Gen	Army	220	78		0			
Station Hospital	Gen	Army	220	78		0			
Guinayangan, 4,055—Tayabas Co	Indus	Indus	10	7		0			
Philippine Lumber Co Hosp	Indus	Indus	10	7		0			
Iloilo, 40,114—Iloilo Co	Iso	Gov't	40			0			
Iloilo Emergency Hospital	Gen	Church	80	52	6				
Iloilo Mission Hospital	Gen	Church	100						
St Paul's Mission Hospital	Gen	Church	100						
Isubela, 2,281—Zamboanga Co	Indus	Indus	24	5		0			
Luslan Lumber Hospital	Indus	Indus	24	5		0			
Iolo, 5,796—Sulu Co	Gen	Gov't	40	16		0			
Sulu Public Hospital	Gen	Gov't	15	12		0			
Kiangan, 276—Ifugao Co	Gen	Gov't	15	12		0			
Kiangan Hospital	Gen	Gov't	15	12		0			
Kolambagan, 1,260—Lanao Co	Gen	Indus	15		2	0			
Kolambagan Hospital	Gen	Indus	15		2	0			
Iloilo, 38,460—Ilocos Norte Co	Gen	Church	40	10	2				
Salte Long Read Memorial Hospital	Gen	Church	40	10	2				
Legaspi, 52,756—Albay Co	Gen	Gov't	35		7	0			
Albay Provincial Hospital	Gen	Church	20	6	6	0	3	208	
Milwaukee Hospital	Gen	Church	20	6	6	0	3	208	
Los Banos, 6,335—Laguna Co	Gen	Army	75	30					
Station Hospital	Gen	Army	75	30					
Isubagan, 226—Kalinga Co	Gen	Gov't	10	5		0			
Isubagan Public Hospital	Gen	Gov't	10	5		0			
Ipcena, 11,939—Tayabas Co	Gen	Gov't	80	53	3	0	10	2,078	
Tayabas Provincial Hosp o	Gen	Gov't	80	53	3	0	10	2,078	
Malaybalay, 9,868—Bukidnon Co	Gen	Gov't	10	8	1	0			
Bukidnon Hospital	Gen	Gov't	10	8	1	0			
Mandaue, 21,464—Cebu Co	Leprosy	Gov't	680	384		0			
Liversley Childs Treatment Station	Leprosy	Gov't	680	384		0			
Manila, 285,306—Rizal Co	Inst	Gov't	300	385		0			
Bilibid Hospital	Gen	Indep	70	25					
Chinese Hospital	Gen	Indep	70	25					
Hospital de San Juan de Dios	Gen	Church	236	214	20				
Mary Childs Hospital	Gen	Church	100	62					
Mary J Johnston Memorial Hospital	Gen	Church	77	75	34				
Maternity and Children's Hospital	Mater	Gov't	80	63	30	0			
Philippine General Hosp *oo	Gen	Gov't	596	476	52	241	107	15,102	
St Joseph's Hospital	Gen	Indiv	75	3	14	0			
St Luke's Hospital	Gen	Church	125	65	10	54	14	2,335	
St Paul's Hospital	Gen	Church	120	55	12	56	11	1,778	
St Theresa's Hospital	Gen	Indiv	65	32	10	0	6	1,060	
San Lazaro Hospital	Gen, Iso	Gov't	1,028	984		0			
Sternberg General Hosp oo	Gen	Army	300	172	8	0	34	3,184	
Margosatubig, —Zamboanga Co	Gen	Gov't	18	6		0			
Margosatubig Hospital	Gen	Gov't	18	6		0			
Muti, 6,440—Davao Co	Gen	Gov't	6	1		0			
Muti Emergency Hospital	Gen	Gov't	6	1		0			
Mintal, —Davao Co	Indus	Indus	60	39		0			
Ohta Development Company Hospital	Indus	Indus	60	39		0			
Naga, —Camarines Sur Co	Gen	Gov't	22	10		0			
Naga Hospital	Gen	Gov't	22	10		0			
Olongapo, 1,430—Zambales Co	Gen	Indep	50	25		0			
Cammilla Simpson Hosp	Gen	Indep	50	25		0			
Puerto Princesa, 5,827—Palawan Co	Gen	Gov't	16	6		0			
Puerto Princesa Hospital	Gen	Gov't	16	6		0			
Sagada, 167—Mountain Co	Gen	Church	10	1		0			
Sagada Mission Dispensary and Hospital	Gen	Church	10	1		0			
San Fernando, 19,885—La Union Co	Gen	Church	34	28	4	0			
Mission Hospital	Gen	Church	34	28	4	0			
Pampanga Emergency Hosp	Gen	Gov't	12	7		0			
San Jose de Buenavista, —Antique Co	Gen	Gov't	10	7	1	0			
Antique Provincial Hospital	Gen	Gov't	10	7	1	0			
San Juan del Monte, 3,145—Rizal Co	Gen	Indiv	100	95		0			
Manila Heights Hospital	Gen	Indiv	100	95		0			
San Pablo, 31,214—Laguna Co	Gen	City	20	15		0			
San Pablo Hospital	Gen	City	20	15		0			
San Pedro, 4,184—Rizal Co	Mental	City	220	220		0			
City Sanatorium of the City of Manila	Mental	City	220	220		0			
Hospital Espanal de Santiago	Iso	Indep	16						
San Roque, —Cavite Co	Mater	Indiv	14	6	10	0	2	112	
San Ramon Maternity and Children's Hospital	Mater	Indiv	14	6	10	0	2	112	
Santa Cruz, 14,151—Laguna Co	Gen	Gov't	35	17		0			
Laguna Provincial Hospital	Gen	Gov't	35	17		0			
Santol, —Rizal Co	TB	Indep	220	175		0			
Santol Tuberculosis Sanat	TB	Indep	220	175		0			
Tacloban, 15,478—Leyte Co	Gen	Church	32	6	2	0	3	420	
Bethany Hospital	Gen	Gov't	30	16		0			
Leyte Provincial Hospital	Gen	Gov't	30	16		0			
Tagbilaran, 12,500—Bohol Co	Gen	Gov't	8	4	1	0	2	184	
Bohol Provincial Hosp o	Gen	Church	25	9	3	0	4	81	
Presbyterian Mission Hosp o	Gen	Church	25	9	3	0	4	81	
Tarlac, 23,886—Tarlac Co	Gen	Gov't	30	27		0			
Tarlac Provincial Hospital	Gen	Gov't	30	27		0			
Vigan, 17,764—Ilocos Sur Co	Gen	Gov't	9	4		0	3	176	
Ilocos Sur Provincial Hosp o	Gen	Gov't	9	4		0	3	176	
Philippine Christian Institute Hospital	Gen	Church	30	11	5				

PHILIPPINE ISLANDS—Continued

Hospitals Sanatoriums and Related Institutions	Type of Service	Control	Beds, Rated	Capacity	Average Patients	Basinsets	Student Nurses	RNs for Nursing	Patients Admitted
Zamboanga, 30,798—Zamboanga Co	Gen	Church	33	16	3	0	4	471	
Brent Hospital	Gen	Gov't	20						
San Ramon Prison Hosp	Inst	Gov't	20						
Station Hospital	Gen	Army	20	5		0			
Zamboanga General Hosp o	Gen	Gov't	80	62	10				
Summary for Philippine Islands	Number	Beds	Average Patients	Patients Admitted					
Hospitals, sanatoriums and related institutions	92	8,425	5,015	42,988					

PORTO RICO

Aguadilla, 10,052—Aguadilla Co	Gen	City	24	20	4				
Hospital Municipal	Gen	City	24	20	4				
Anasco, 3,064—Aguadilla Co	Gen	City	16	9	3	0	0	300	
Municipal Hospital	Gen	City	16	9	3	0	0	300	
Arecibo, 12,863—Arecibo Co	Gen	Indiv	10	4					
Clinica de Arecibo	Gen	Indiv	10	4					
Bayamon, 12,886—San Juan Co	Gen	City	50	40					
Hospital Municipal de Bayamon	Gen	City	50	40					
Cabo Rojo, 4,605—Mayaguez Co	Gen	City	16	12		0			
Hospital Municipal	Gen	City	16	12		0			
Cannovanas, —Humacao Co	Gen	City	14	11	3	0			
Hosp Municipal de Larza	Gen	City	14	11	3	0			
Cayey, 6,053—Guayama Co	Gen	Indiv	18	8	6	0			
Clinica Dr Villeneuve	Gen	Indiv	18	8	6	0			
Fajardo, 7,322—Humacao Co	Gen	Cy & Co	34	30					
Luis Manuel Clintron Hosp	Gen	Cy & Co	34	30					
Gurabo, 3,468—Humacao Co	Gen	City	20	20	2	0			
Hosp Municipal de Gurabo	Gen	City	20	20	2	0			
Humacao, 7,937—Humacao Co	Gen	Church	50	28	6	20	8	1,257	
Ryder Memorial Hospital	Gen	Church	50	28	6	20	8	1,257	
Inceos, 5,297—Humacao Co	Gen	City	20	15		0			
Hospital Municipal	Gen	City	20	15		0			
Lares, 3,040—Aguadilla Co	Gen	Part	10	6	2				
Clinica San Jose	Gen	Part	10	6	2				
Hosp Municipal de Lares	Gen	City	18	15	2	0			
Las Piedras, 1,835—Humacao Co	Gen	City	16	8		0			
Las Piedras Municipal Hosp	Gen	City	16	8		0			
Manati, 7,440—Arecibo Co	Gen	City	25	20		0			
Hospital Municipal Manati	Gen	City	25	20		0			
Manabo, 1,117—Guayama Co	Gen	City	20	9		0			
Hospital 'San Jose'	Gen	City	20	9		0			
Mayaguez, 37,060—Mayaguez Co	Gen	Indiv	80	60		0	4	4,328	
Mayaguez and Western Pol	Gen	Indiv	80	60		0	4	4,328	
Mayaguez Sanatorium	Gen	Part	30	20		0			
Naguabo, 4,087—Humacao Co	Gen	City	15	6		0			
Hospital Municipal de Naguabo	Gen	City	15	6		0			
Ponce, 53,430—Ponce Co	Gen	Church	75	40		10	10	1,211	
St Luke's Memorial Hosp	Gen	Church	75	40		10	10	1,211	
Santo Asilo de Dames Hosp	Gen	City	110	60					
Tricoche Municipal Hosp	Gen	City	100	75					
Quebradillas, 1,755—Aguadilla Co	Gen	City	8			0			
Hospital Municipal de Quebradillas	Gen	City	8			0			
Rio Piedras, 13,408—San Juan Co	Mental	Gov't	1,000	952		0	4	320	
Psychiatric Hospital of Puerto Rico	Mental	Gov't	1,000	952		0	4	320	
Sanatorio de La Sociedad Espanola de Auxilio Mutuo y Beneficencia de Puerto Rico	Gen	Indep	150	75	20	0	47	1,397	
Salinas, 2,252—Guayama Co	Gen	City	60	20	6	0			
Hospital de Salinas	Gen	City	60	20	6	0			
San Juan, 114,715—San Juan Co	Inst	Gov't	38	20	20	0			
Hospital de la Penitenciaría	Inst	Gov't	38	20	20	0			
Hospital de Maternidad y Ninos	Mater	City	35	35		0			
Hospital Municipal	Gen	City	106	70					
Insular Leper Colony	Leprosy	Gov't	40						
Porto Rico Sanatorium	Gen	Gov't	10	6					
Post Hospital	Gen	Army	100	35	0	0	6	476	
Presbyterian Hospital	Gen	Church	70	75	7	44	8	1,512	
Quarantine Hospital	Iso	Gov't	40						
University Hosp of the Sch of Tropical Medicine	Gen	Indep	52	32	3	11	5	401	
Santuree, —San Juan Co	Gen	Indep	15	8	2				
Santa Rosa Clinic	Gen	Indep	15	8	2				
Utado, 4,758—Arecibo Co	Gen	City	26	15	2	0			
Hospital Municipal Catalina Figueras, In Memoriam	Gen	City	26	15	2	0			
Vega Baja, 4,784—Arecibo Co	Gen	City	36	10	4	0	2	24	
Vega Baja Municipal Hosp o	Gen	City	36	10	4	0	2	24	
Yabucoa, 3,841—Humacao Co	Gen	City	24	12	2	0			
Yabucoa City Hospital	Gen	City	24	12	2	0			
Yauco, 6,607—Mayaguez Co	Gen	Indiv	26	2		0	1	43	
Clinica 'El Amparo'	Gen	Indiv	26	2		0	1	43	
Summary for Porto Rico	Number	Beds	Average Patients	Patients Admitted					
Hospitals, sanatoriums and related institutions	30	2,605	1,883	11,540					

VIRGIN ISLANDS

St Thomas, 7 036—St Thomas Island	Gen	City	92	53	12	10	4	873
Municipal Hospital	Gen	City	22					
U S Naval Hospital	Gen	Navy						
Summary for Virgin Islands				Average		Patients		
Hospitals, sanatoriums and	Number	Beds			Patients	Admitted		
related institutions	2	114			53	873		

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET - - CHICAGO, ILL.

Cable Address

Medic, Chicago"

Subscription price - Seven dollars per annum in advance

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SATURDAY, MARCH 25, 1933

HOSPITAL INSURANCE AND MEDICAL CARE

In times of sickness and misfortune, charlatans flourish. The desperate man grasps at any straw and is ready to try any scheme that offers something for nothing or more for less than it costs. As is revealed by the report of the Council on Medical Education and Hospitals elsewhere in this issue, there are in this country 6,562 hospitals with more than a million beds. More than 200,000 of these beds are not occupied. This is no doubt largely a reflection of the current economic situation. It is unquestionably associated with the fact that the government hospitalized gratis large numbers of veterans who suffer from non-service connected disabilities and who were well able to pay for hospital care. The failure of occupancy of these beds represents a serious situation to the hospitals. Fortunately, an order has already gone forth ordering admission for the present at least of emergency cases only. Moreover, the current economic situation has thrown into medical service a considerable number of business men who see in various insurance and other commercial medical schemes an opportunity for recouping fortunes lost through other business ventures. They are perhaps stimulated to entrance into the medical field by the unusual attention focused on this problem by the publicity given to the reports of various committees and commissions during recent years. It is unfortunate that lay and medical organizations in many cities were urged by the publicity director of the Committee on the Costs of Medical Care to embark on half-baked experiments in changing the nature of medical practice.

In many communities, hospital insurance schemes have been developed which are offered as exceptional opportunities to great numbers of people to protect themselves against unanticipated hospital bills. The Bureau of Medical Economics of the American Medical Association has analyzed many such schemes, and reprints are available of these analyses as they have appeared in *The Journal*. The Council on Community Relations and Administrative Practice of the American

Hospital Association has recently analyzed various periodic payment plans for the purchase of hospital care, sometimes called group hospitalization, and has apparently given its approval to such plans, subject, however, to certain restrictions.

The medical profession hesitates to approve any such plan because these plans fail to provide for complete participation of most if not all the recognized hospitals in the community, complete participation of the reputable physicians of the community and, associated with this, free choice of physician by the patient and free choice of hospital under the policy. The most important ingredient in medical care is the personal attention of a competent physician. The committee of the hospital association recognizes the necessity for having patients admitted on the recommendation of their own physicians and cared for by their own physicians. They feel that such plans should not disturb any arrangement for the payment of fees between physician and patient or in any way disturb the preexisting normal relationship between the doctor and those he serves. Emphasis is placed on the fact that it is the hospital bill which forms the chief difficulty for patients in the current financial situation.

THE JOURNAL has repeatedly emphasized the danger of exploitation of such plans by commercial interest which charge excessively for selling the service or promoting it and which frequently have insufficient financial backing to carry responsibility. The patient and the physician who may be involved in such scheme should realize that the clauses in fine print which limit the number of conditions covered by the policy, which limit the term of stay of the patient in the hospital and which otherwise tend to invalidate the policy demand most careful consideration. The committee of the hospital association recommends that the direction of activities in all such schemes should remain in the hands of a nonprofit organization representing the hospitals and should never be transferred to an business agency. One of the chief menaces to medicine under such plans is the incitement to solicitation for patients and competitive underbidding.

Today all such plans are in an experimental stage. Their consideration demands the most careful attention of the most astute minds available in both the medical and the hospital fields. These schemes are fraught with danger in placing hospitals on a competitive basis for patients, offering service at prices lower than warranted with subsequent skimping of the service, and, most serious of all, disruption of medical organization and of the whole institution of medicine. That institution has an enviable record of thousands of years of service to the public. Economic depressions have come and gone many times in the history of the world. The present predicament should not be permitted to destroy or disrupt institutions that have stood the test of time.

"GINGER POISON"

One of the most pathetic by-products of the governmental effort to enforce prohibition in this country involved the adulteration of jamaica ginger, which has come to be purchased widely and consumed because of its liberal content of the proscribed ethyl alcohol Tincture of ginger U S P has an alcoholic content of about 76 per cent. A manufacturer, seeking a cheap adulterant for the product, came on a little known substance, triorthocresyl phosphate which he incorporated freely into his alleged jamaica ginger. The illicit use of this product as a beverage was followed by a wave of so-called jake paralysis in many sections of the United States early in 1930. The adulterated concoction sold in drug stores in many states, is reported to have caused deformity and paralysis in from fifteen to twenty thousand victims, many of whom have died.

Great credit is due to the U S Public Health Service for having discovered the real cause of a most baffling series of symptoms of "jake paralysis".¹ A peculiarity of the intoxication is its insidious onset. The prominent manifestations, notably the paralytic consequences, usually fail to become manifest for some time. Then there appears a symptom complex characterized by bilateral and symmetrical flaccid paralysis for the most part of the distal muscles of the lower and to a lesser extent of the upper extremities, with practically no sensory disturbances. The results were not such as pharmacologists might be led to expect from soluble phenols and cresols. Consequently the government experts have engaged in an elaborate study of compounds in which phenolic groups are firmly bound in combination with phosphoric acid. Recently it has been pointed out² that an apparently new type of relationship between physiologic action and chemical constitution thus presented itself. This is a matter of practical as well as theoretical concern, for some of the phenolic compounds used in therapeutics such as phenyl salicylate and guaiacol carbonate, belong to the same general class as the objectionable orthocresyl phosphoric ester.

The investigations disclose that by altering the chemical constitution of the phenolic esters in certain directions it is possible to produce compounds of widely different pharmacologic action, their effects in the animal body varying all the way from the purely phenol-like action to the singular specific type of neurotoxic action marked by a long latent interval or "incubation period". According to the government

investigators,³ the essential requirements that would endow a phenol ester with neurotoxic properties would seem to be (1) lipid solubility, (2) a moderate degree of stability, (3) an anion not easily oxidizable, and (4) a course of distribution in the body so that the phenolic disintegration product of hydrolysis may escape the detoxifying process of oxidation, conjugation and elimination. Such properties, as in the case of the "ginger poison," tend to explain why the action is so insidious and why the effects usually develop only after a latent interval of many days. In its action it bears little or no resemblance to the phenols. It has a selective action more or less limited to certain well defined physiologic units of the nervous system, which endows them with specific neurotoxic properties. The only possible good arising from this incident is the lesson it has taught concerning some unexpected and insidious reactions to which the organism may be exposed.

**ROENTGENOGRAPHICALLY NEGATIVE
PULPLESS TEETH AS FOCI
OF INFECTION**

In searching for foci of infection as a cause of systemic disease, the teeth are most often suspected. Satisfactory roentgenograms, together with careful direct inspection and tests for vitality, make an evaluation of the teeth as sources of infection less difficult than is the case with the other common foci. However, there is a surprising lack of agreement as to which teeth are to be considered foci of infection. Often the condition is obvious, but difficulty arises in deciding the fate of (1) pulpless teeth showing roentgenographically extremely little or no change at the root, (2) root fragments left from previous attempts at extraction which are roentgenographically negative, (3) so-called residual areas of bone condensation or rarefaction at the site from which a tooth has been removed, and (4) teeth that respond to the electric current and have only slight changes at the tip and about the shafts in films. That pulpless roentgenographically negative teeth constitute a major medical and dental problem is shown by statistics of various workers covering the roentgenographic examination of many hundreds of teeth. These statistics reveal that from 80 to 90 per cent of the mouths of adults contain teeth with filled root canals and that an average of 69.5 per cent of these pulpless teeth show roentgenographic evidence of periapical infection. They also seem to indicate that a high percentage of pulpless teeth eventually show roentgenographic evidence of bone change at the apex, even though there is no evidence of bone destruction at the time the root canals are filled.

¹ Smith, M. I., Elvove, Elias, Valaer, P. J., Frazier, W. H. and Mallory, G. E. *Pub. Health Rep.* 45: 1703 (July 25) 1930. Smith, M. I., Elvove, Elias, and Frazier, W. H. *ibid.* 45: 2509 (Oct. 17) 1930. The Etiology of Ginger Paralysis, editorial, *J. A. M. A.* 95: 1672 (Nov. 29) 1930. Smith, M. I. and Lillie, R. D. The Histopathology of Triorthocresyl Phosphate Poisoning, *Arch. Neurol. & Psychiat.* 26: 976 (Nov.) 1931. Bennett, C. R. *South M. J.* 23: 371 (May) 1930. Harris Seale, Jr., *ibid.* 23: 375 (May) 1930. Burley, B. T. *New England J. Med.* 202: 1139 (June 12) 1930. Goldfain, Ephraim. *Okla. home M. J.* 23: 191 (June) 1930.

² Further Studies on the Pharmacology and Neuropathology of Certain Phenol Esters, *Pub. Health Rep.* 48: 137 (Feb. 10) 1933.

³ Smith, M. I., Engel, E. W. and Stohilman, E. F. Further Studies on the Pharmacology of Certain Phenol Esters with Special Reference to the Relation of Chemical Constitution and Physiologic Action, *Bull. 160, National Institute of Health* 1932, p. 1. Lillie, R. D. and Smith, M. I. The Histopathology of Some Neurotoxic Phenol Esters *ibid.*, p. 54.

From an experimental point of view, Haden¹ considered the total bacterial count of the area at the roots of the teeth the best index of their disease-producing potentialities. He made quantitative cultures in deep tubes of dextrose-bram-agar of 600 pulpless teeth which he considered roentgenographically negative. By his technic, 46.2 per cent of such teeth were found to have ten or more colonies to the tube. Cultures of 400 vital teeth that were negative roentgenographically were taken in the same way as controls. This group had ten or more colonies to the tube in only 4.8 per cent. The percentage above this figure in a series of 500 pulpless teeth with positive roentgenographic evidence of bone destruction was 62.8. Streptococci were the predominating organisms in all cultures. He considers pulpless roentgenographically negative teeth almost as potent in causing systemic disease as those having frank destruction at the roots.

Many instances of prompt improvement in systemic disease following removal of pulpless roentgenographically negative teeth were cited, as well as an extensive series of animal inoculations in which typical lesions, such as arthritis and endocarditis, were produced with the organisms recovered from these teeth.

Recently, Rhoads and Dick² made a study to throw additional light on the pathologic significance of pulpless roentgenographically negative teeth. Quantitative cultures were made from the apices of twenty-nine roentgenographically negative pulpless teeth, and cultures of a series of fourteen vital healthy roentgenographically negative teeth taken in precisely the same manner were used as controls. In their series, in order to be considered roentgenographically negative, the film of the tooth of which a culture was taken had to reveal no absorption along the shaft of the tooth and no rarefaction or condensation in the bone surrounding the apex. Only teeth having root canal fillings visible in the roentgenogram were used in the pulpless tooth series.

Careful technic was used in order to avoid contamination in extracting the teeth. The average bacterial count of the twenty-nine pulpless roentgenographically negative teeth was 759,574, while the average count of the controls was 1,876. While Rhoads and Dick state that some of the "control" teeth may have had bacteria growing at their roots, they think the growth obtained represented unavoidable contamination. However, the difference in the counts in the two series is too great to be credited to chance contamination.

Cultures of the pulpless teeth yielded green forming streptococci in every instance. In all but two they were the predominating organisms. The other organisms frequently found were *Staphylococcus albus*, gram-negative bacilli and hemolytic streptococci.

Rhoads and Dick did not draw conclusions from the clinical results obtained in their patients because in but few instances was the single extraction the only measure taken to relieve the symptoms of systemic disease. However, it is significant that practically all their patients experienced some improvement, and in some instances the assumption seemed justified that extraction of the teeth with filled root canals was responsible for the clinical result obtained.

In view of the results of quantitative cultures by Haden and by Rhoads and Dick, it seems justifiable to regard all pulpless teeth as possible foci of infection whether they show apical changes in the roentgenograms or not. At least this position should be taken in the presence of systemic disease of a type usually associated with focal infection.

Current Comment

SURGICAL SHOCK

One of the pathologic conditions with which the surgeon is constantly confronted is shock. This syndrome was particularly prominent in military hospitals during the World War, and in more recent years the increase in accidental injuries in civil life has raised again the question of the etiology of surgical shock. The older view considered the condition essentially a toxemia, the products of tissue injury, either primary or after a period of autolysis or other decomposition, entered the circulation and, acting as capillary poisons, produced extreme vasodilatation and permitted the loss of more or less fluid through increased permeability. The paradoxical statement that a shocked individual suffered from hemorrhage into the vast splanchnic capillary bed arose during the war from these considerations. Within the last three years, editorial comment in *THE JOURNAL* has at various times called attention to experimental studies from which the general conclusion was drawn that the shock following traumatic injury and burns can be explained largely on the basis of actual loss of fluid from the circulation into the interstitial spaces of the injured tissues. Fluid equivalent to surprisingly large proportions of the total blood volume has thus been shown to accumulate in the injured tissues. Only infrequently does this "edema" fluid contain red blood corpuscles, usually its composition approaches that of plasma. The latter view of the etiology of shock has the weight of cogent recent experimental evidence in its favor, yet a closer scrutiny of the details of both apparently conflicting theories reveals some strikingly similar points. The toxic theory assumes a passage of fluid out of the capillary walls to some extent, as well as a vasodilatation. The more recent view postulates an initial injury to the capillaries, to some extent an actual rupture of the vessels permitting loss of whole blood but largely an increase in permeability to plasma proteins; the latter condition must be brought about by a local factor resulting from the injury, whether or

¹ Haden, K. L. *Dental Infection and Systemic Disease*. Philadelphia: Lea & Febiger, 1928.

² Rhoads, J. S., and Dick, C. F. Roentgenographically Negative Pulpless Teeth as Foci of Infection: Results of Quantitative Studies. *J. A. Dent. A.* 19: 1884, 1928.

not this factor is called a toxin. Further than this, however, the two theories lay emphasis on divergent circumstances in the primary causation of shock. Whatever the final answer to the question of the detailed description of the etiology of shock proves to be, the investigators in this field have again called attention to the vital importance of the integrity of the volume of the blood apart from its composition.

Association News

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts on Tuesday and Thursday from 9 15 to 9 30 a m (central standard time) over Station WBBM (770 kilocycles, or 389.4 meters). The subjects for the week are as follows:

March 28 Dependable Clinical Thermometers
March 30 The Voice

There is also a fifteen minute talk sponsored by the Association on Saturday morning from 9 45 to 10 o'clock over Station WBBM.

The subject for the week is as follows:

April 1 Baby Learns to Walk

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

COLORADO

University News—The eighth annual series of clinics of the University of Colorado School of Medicine and Hospitals was held, March 22-24. The general outline of the program included obstetrics and gynecology, orthopedics and dermatology, in the morning, and neurology and tuberculosis in the afternoon of March 22. Clinics on medicine, urology and proctology were carried on in the morning, March 23, while the afternoon was devoted to ophthalmology, pathology and psychiatry. The forenoon, March 24, was given over to general surgery and pediatrics, and the afternoon to otolaryngology and radiology.

Publisher Leaves Fortune to Foundation—Through the will of Mr. Frederick G. Bonfils, late publisher of the *Denver Post*, the bulk of his estate, after provision for members of his family, will be devoted to charitable, educational and scientific purposes. The funds will be distributed through the Bonfils Foundation, which he created, Dec. 17, 1927, as "a corporation, not for profit, organized for charitable, benevolent, scientific medical and public educational purposes" (*THE JOURNAL*, Feb. 25, 1928, p. 622). Trustees are to have discretion in the use to which funds of the foundation are to be devoted in promoting "the general well-being of mankind," the *New York Times* reported. Estimates have placed the estate at \$10,000,000 and upward, it was stated.

DELAWARE

Bill Introduced—Senate Substitute for S. 133, to amend the workmen's compensation act, proposes to compensate employees who contract in the course of their employments any one of certain named occupational diseases.

DISTRICT OF COLUMBIA

District Bills in Congress—S. 450, introduced by Senator Capper, Kansas, proposes to empower the health officer of the District to authorize the disinterment and reinterment of bodies in cases in which death has been caused by contagious diseases. H. R. 1642, introduced by Representative McLeod, Michigan, proposes to authorize an appropriation of \$50,000

for the alteration and repair of Eastern Dispensary and Casualty Hospital in the District of Columbia.

University News—Dr. Stanhope Bayne-Jones, New Haven, Conn., gave one of the lectures in the Smith-Reed-Russell Society series at George Washington University, February 23, on "Bacterial Toxins." Maurice C. Hall, D.V.M., chief, zoological division, U. S. Bureau of Animal Industry, spoke, March 16, on "Drama Anthelmintica," and Dr. George B. Jenkins gave the February faculty seminar on "Comparative Embryology of the Central Nervous System."

Society News—Dr. Joseph L. Gilbert addressed the George M. Kober Medical Society in Washington, March 20, on "Traumatic Psychoses." The society was addressed February 20, by Charles L. Smith, D.D.S., on "When Should a Tooth Be Extracted?"—The Medical Society of the District of Columbia heard Dr. James G. Cumming speak, March 1, on "The Bonus Army: Health and Sanitary Problems," and Drs. John deJ. Pemberton, Rochester, Minn., and George E. Pfahler, Philadelphia, March 8, on "Results of Surgical Treatment of Hyperthyroidism" and "Radiation Treatment of Hyperthyroidism."

GEORGIA

Bill Enacted—S. 135, amending the pharmacy practice act by requiring all applicants for registration as pharmacists to be graduates of schools of pharmacy recognized by the board of pharmacy and, in addition, to have twelve months of practical experience in places where prescriptions of physicians are dispensed by licensed pharmacists, has become a law.

ILLINOIS

Low Birth and Death Rates—Complete provisional statistics for 1932 give Illinois the lowest birth and death rates of record in the state, according to the state health department. There were 83,183 deaths and 111,523 births reported, giving rates per thousand estimated population of 107 and 144, respectively. The number of births in 1932 was 7,265 short of the 1931 figure and 29,914 below the 1924 record, the year of highest birth registration. New low death rates were recorded for measles with a rate of 0.7 per hundred thousand, diphtheria, 3.1, tuberculosis, 5.5, infant mortality, with a rate of 5.2 per thousand live births reported. Increases were noted in the death rates for heart disease, with 23.5 deaths per hundred thousand of population against a previous high of 22.1, cancer, 11.6 against 11.2, and diabetes, 2.67 against 2.57. Automobile accidents resulted in 2,104 deaths, giving a rate of 27.1 per hundred thousand as compared with 2,333 deaths and a rate of 28.7 in 1931.

Chicago

Personal—Dr. Andrew J. Toman has been appointed director of the House of Correction and Police Emergency Hospital, succeeding Dr. Frank J. Jirka, who is now state health officer. —A meeting in memory of the late Dr. Emil G. Beck was held, February 12, at the John B. Murphy Hall, speakers were Drs. Frederic A. Besley, Waukegan, Victor L. Schrage, Carl A. Hedblom, James T. Case, Benjamin H. Orndoff and Mr. Horace J. Bridges.

Giant X-Ray Tube—A transformer delivering 1,200,000 volts and a giant x-ray tube with a capacity of from 800 to 1,000 kilovolts are being installed at Mercy Hospital. The special building contains three floors, the first of which houses a 300 kilovolt transformer, and the second, a control room and a radium treatment room, and lead-enclosed cubicles. The treatment room for the high voltage roentgen rays is 10 feet long, 5 feet wide and 8 feet high. The tube will be activated by 10 to 30 milliamperes, so that the duration of treatment will be reduced to a fraction of the time formerly required. The radiation therapy department will be under the direction of Dr. Henry Schmitz.

INDIANA

Bill Enacted—S. 172, requiring instruction in the elementary public schools as to the effect of alcoholic drinks and narcotics on the human system, has become a law.

Course on Medical Economics and Ethics—The Indiana University School of Medicine is conducting a course in medical economics and medical ethics for the senior class. The purposes and content of the course have been approved by the Indiana State Medical Association, which has appointed a committee, composed of Drs. George J. Geisler, South Bend, Cyrus Clark, Jr., Indianapolis, and Garland D. Scott, Sullivan, to cooperate with the faculty of the medical school. The course opened, February 1, with a talk on "General Principles of Ethics" by Mr. Daniel S. Robinson, Bloomington. Among

subsequent speakers have been Drs J Maurice Barry, Indianapolis, on "Principles of Medical Ethics", Joseph H Weimstein, Terre Haute, "Work and Ideals of Organized Medicine", Dr Thurman B Rice, Indianapolis, "Duties of the Doctors in Safeguarding Public Health", Dr William N Wishard, Sr, Indianapolis, "Conduct of Consultations", Dr Willis D Gatch, Indianapolis, "Code of Medical Ethics", Dr James Oscar Ritchey, Indianapolis, "Prognosis," and Dr Cyrus J Clark, Jr, Indianapolis, "Problems of the Young Physician" Commg speakers and their subjects are as follows

Dr Olin West Secretary and General Manager, American Medical Association Chicago March 29 Newer Forms of Medical Practice
Mr Evans Woollen, Jr Indianapolis April 5 Saving and Safe Investment
Mr Charles Beckett Indianapolis April 12, The Mathematics of Life Insurance
Speaker to be announced April 19 Life Insurance Examinations
Dr Carl H McCaskey, Indianapolis, April 26 Office Equipment of the Doctor
Dr William R Davidson Evansville May 3 Work of the Indiana State Board of Medical Registration and Examination

Program of Reminiscences—The Indianapolis Medical Society, at its meeting, March 28, will hear a discussion of war experiences by members of the Lilly Base Hospital Unit. Each physician will relate his reminiscences from a special point of view as follows

Robert M Moore, internist
Eugene B Mumford, orthopedic surgeon
Raymond C Beeler and Ralph L Lochry, roentgenologists
Carleton B McCulloch commanding officer of a mobile hospital.
Joseph W Ricketts with a heavy artillery regiment.
Elmer Funkhouser ammunition train.
Frank C Walker surgical team at the front
Alois B Graham adjutant
Edmund D Clark commanding officer

Bishop Joseph M Francis will describe his experiences as a chaplain

IOWA

Bill Introduced—S 451 proposes to create a board of naprapathic examiners and to regulate the practice of naprapathy. "The practice of naprapathy shall be deemed to be the examination for, and charting of shrunken ligaments and connective tissues, and the scientific relaxing of such ligaments and connective tissues in accordance with Naprapathic Principles and Directopanning, but it shall not include operative surgery, osteopathy, nor chiropractic, nor the administration or prescribing of any drug or medicine now or hereafter included in materia medica." Naprapaths are to be entitled to all the rights and privileges granted to physicians and surgeons

KANSAS

Bills Enacted.—H 431 and S 340 have become laws. H 431 requires all licentiates under the medical practice act to renew their licenses annually and to pay annual fees of \$1 on or before October 1 but not earlier than July 1. The secretary of the board of medical registration and examination must strike from the register of licensed physicians the names of all physicians who have not paid their annual registration fees as required by law. Physicians whose names are so removed, however, may be reinstated by paying the secretary \$5 and submitting to him satisfactory proof of moral fitness. This new law strikes from the medical practice act the provision that no school of practice is to have a majority on the board of medical registration and examination and makes the secretary of the board the custodian of the common seal and of the books and records of the board. S 340 authorizes the governing body of any city operating under the commission form of government and having a population of more than 120,000 inhabitants to license and regulate all professions pursued within the limits of the city.

LOUISIANA

State Meeting Called Off—The Louisiana State Medical Society has dispensed with the annual meeting which was to have been held in Lake Charles April 25-27. A business meeting will be held at a date and place yet to be determined.

MAINE

Bill Passed—S 571 proposing to require all hospitals receiving any public funds to permit osteopaths to practice within their confines, has been passed by the senate.

Bills Introduced—H 1527 proposes to prohibit the dispensing or other distribution of vitamin or barbitol, except on the written prescription of a physician, dentist or veterinarian. H 1513 proposes to create a state board for the regulation of the practice of hairdressing and beauty culture. Licentiates are to be authorized among other things, to massage, cleanse, stimulate, manipulate, exercise or otherwise to improve or to beautify the scalp, face, neck, shoulders, arms, hands.

Society News—Dr Franklin A Ferguson spoke before the Portland Medical Club, February 7, on "The Physician and Leisure"—At a meeting of the Kennebec County Medical Association in Gardiner, February 16, Drs Forrest C Tyson, Augusta, and Theodore S Moise, Bangor, spoke on "Clinical Differentiation of Organic and Functional Mental Disorders" and "Surgical Treatment of Pulmonary Tuberculosis," respectively—Dr Frederick T Hill, Waterville, gave an illustrated lecture on "Bronchoscopic Diagnosis and Treatment of Various Conditions of the Respiratory Passage."

MASSACHUSETTS

Golden Wedding Anniversary—Dr Oscar Richardson and his wife, Dr Anna Gove Richardson, Lakeville, celebrated their golden wedding anniversary, Dec 20, 1932, at a reception given in their honor by friends. From 1892 until her retirement Mrs Richardson served on the staff of the Vincent Memorial Hospital, Boston, where, for several years, she was chief of staff. Dr Richardson was associate medical examiner for Suffolk County from 1913 to 1921. Since his retirement, he has published two books of poems.

Alumni Dinner—Dr Louis E Phaneuf, professor of gynecology, Tufts College Medical School, Boston, presided at the first annual alumni dinner of the school, February 27. The speaker of the evening was President John A. Cousens. Talks were also given by Drs Albert Warren Stearns, dean of the medical school, William Allen White, Roxbury, a member of the first class graduated from the school in 1894, Maurice Coleman Harris, New York, James W Manary, Boston, Edward L Merritt, Fall River, and Frank H Washburn, Holden.

Seventh Health Unit Dedicated—The seventh health unit established through the George Robert White Fund was dedicated, February 24, and presented to the city of Boston for the conservation of public health. Dr Shirley W Wynne, health commissioner of the city of New York, gave the dedicatory address. Gen Edward L Logan, manager of the fund, who presided, stated that \$3,000,000 had been spent for these units, which are maintained by the city health department. No more units are contemplated, it was said. The plan for the health units was conceived at a meeting in Boston about seventeen years ago with Drs Richard C Cabot, Francis X Mahoney and Charles F Wilkinsky, who is director of health in charge of the units (THE JOURNAL, Oct 11, 1930, p 1104). These units, the first of which was established in 1915 are educational institutions functioning for the training of the public in an understanding and practice of health conservation. Drs Mahoney and Wilkinsky also spoke at the dedication of the new unit.

MICHIGAN

Bills Introduced—H 318, to amend the laws relating to the commitment of the insane, proposes to require that a certificate of insanity be made by two physicians, one of whom must be the family physician of the person to be committed or, if there is no family physician, be a physician chosen in rotating order from a list of doctors of medicine in the county. H 319 to amend the laws relating to the medical treatment to be furnished by counties for the indigent sick, proposes to provide that all applicants for such relief be examined by their family physicians or, if there are no family physicians, by physicians chosen in rotating order from lists of licensed doctors of medicine in the several counties.

NEVADA

Bill Enacted—S 61, repealing the laws relating to the possession and distribution of narcotic drugs and enacting the uniform narcotic drug act, has become a law.

Bill Passed—A 296 proposing to give to hospitals and clinics that render hospital services and treat persons, injured through the fault of other persons, liens on all rights of actions, claims, judgments, compromises or settlements, accruing to the injured persons by reason of their injuries, has passed the house.

NEW HAMPSHIRE

Bill Introduced—H 327 proposes to repeal the laws regulating the sale and other distribution of narcotic drugs and to enact the uniform narcotic drug act.

Bill Enacted—S 20, amending the workmen's compensation act by increasing from fourteen days to thirty days the period during which an employer must furnish reasonable medical and hospital services to an injured employee has become a law.

NEW JERSEY

Society News—Dr John F Erdmann, New York, addressed the Atlantic County Medical Society, Atlantic City, March 10, on recognition and treatment of postoperative complications—Dr Bvrl R Kirklin, Rochester, Minn., will deliver a lecture on "Ulcerating Lesions of the Stomach Their Differential Diagnosis," March 31, at the Jersey City Medical Center—Drs David J Kaliski and Samuel J Kopetzky, New York, addressed the Bergen County Medical Society, Hackensack, February 14, on "Present-Day Medical Economic Problems"—Dr Martin E Rehfuess, Philadelphia, addressed the Gloucester County Medical Society, Woodbury, January 19, on gastro-enterologic problems of interest to the general practitioner

NEW MEXICO

Bill Enacted.—S 72, making the incurable insanity of either spouse a cause for divorce, has become a law

NEW YORK

Bills Introduced—A 1977, to amend the workmen's compensation act, proposes, in effect, to make compensable all occupational diseases contracted in the course of any employment covered by the act A 2025 proposes to repeal the laws regulating the possession and distribution of narcotic drugs and to enact the uniform narcotic drug act

State Medical Meeting—The one hundred and twenty-seventh annual meeting of the Medical Society of the State of New York will be held in New York City, April 3-5, with headquarters at the Waldorf-Astoria Hotel The House of Delegates will meet Monday, April 3, for the report of the retiring president, Dr Charles Gordon Heyd New York, and the inaugural address of the incoming president, Dr Frederick H Flaherty, Syracuse At the annual delegates' dinner, Monday evening, addresses will be presented by Drs Emil Koffler, New York, Stuart Pritchard, Grand Rapids, Mich., and Henry F Vaughan, Dr PH, Detroit Dr George F McCleary, medical officer of the Ministry of Health, London, will be a guest at the dinner The society's annual dinner will be held Tuesday evening, April 4, when Drs Flaherty and Heyd and Howard W Haggard, New Haven, Conn., will speak The scientific program will include symposiums on dental conditions as they affect general health, disorders of liver function, vascular disease, toxemias of pregnancy, gynecologic neoplasms, dermatotherapy, chronic simple glaucoma and hoarseness Invited guests who will participate in these symposiums with New York physicians include Harold A Kent, DDS, Boston Ewing C McBeath MD, DDS, Arthur H Merritt, DDS, and Lester R Cahn, DDS, all of New York, Drs Charles H Best, Toronto Lester R Wintaker, Boston Robert A Kimbrough, Jr, William Zentmayer and John H Stokes Philadelphia Other guests who will address the general scientific sessions are

Dr Frank H Iahey, Boston, Diagnosis and Management of Carcinoma of the Rectum

Dr Walter Freeman Washington D C Disorders of Muscle Tone and Their Localizing Significance

Dr Francis C Grant Philadelphia Surgical Relief of Intractable Pain

Dr Frederick F Tisdall, Toronto, Recent Dietary Studies of Practical Interest to the Physician

Dr Joseph C Bloodgood Baltimore Cancer as a Preventable Disease

Dr Frank H Krusen, Philadelphia, Present Day Problems in Light Therapy

Monday will be "Clinic Day," when clinical demonstrations will be made available in many of the leading hospitals of the city The final session will be an open public meeting at which the following program will be presented

Dr Olin West Chicago Secretary and General Manager American Medical Association, The Community and the Physician

Dr Jewell F Barker, Baltimore, What the Community Should Know About Arthritis

Dr Frank H Iahey, Boston, What the Community Should Know About Gout

Dr Dorn Lewis, Baltimore What the Community Should Know About Appendicitis

Dr Elliott P Joslin, Boston, What the Community Should Know About Diabetes

Dr Linsly Williams New York, What the Community Should Know About Tuberculosis

Dr Thomas Parran, Jr, Albany, The Health of the State

New York City

Personal—Philip P Jacobs, director of publications and extension of the National Tuberculosis Association, recently completed his twenty-fifth year with the association—George A Soper, Ph D, was recently made an honorary member of the Royal Sanitary Institute of Great Britain—Dr Charles R Stockard, professor of anatomy Cornell University Medical School, is giving a series of fifteen weekly lectures at the

New School for Social Research, on "Modern Analysis of Living Structures and Behaviors"—Dr Alfred F Hess will deliver the Ingleby Lectures of the University of Birmingham, England, in the summer term

Society News—Dr Morris Fishbein, Chicago, editor of THE JOURNAL, gave an address at the annual dinner of the Central Medical Council of Brooklyn February 24, on trends of medical practice—Dr Norman E Titus addressed the New York Physical Therapy Society, March 1, on "Teaching of Physical Therapy to Graduate and Undergraduate Physicians and Technicians"—Dr Murray H Bass gave an afternoon lecture before the Medical Society of the County of Queens, March 17, on "Rheumatic Infection, with Special Reference to Unusual Types"—Formation of the Society for the Prevention of Asphyxial Death was recently announced Officers are Drs Paluel J Flagg, president, Cornelius J Tyson, Joseph D Kelly and John F McGrath, vice presidents, and George W Cumbler, secretary The advisory board of the society is said to include Drs Alexis Carrel, Allen O Whipple and Walter L Niles, New York, Chevalier Jackson, Philadelphia, and Prof Yandell Henderson, Ph D, New Haven, Conn—A symposium on allergy was presented at the meeting of the Medical Society of the County of Queens, February 28, by Drs Marion B Sulzberger, William C Spain and Bret Ratner The committee on graduate education of the society has arranged courses on x-ray knowledge for the general practitioner, radium therapy, fractures, abdominal surgery and ear, nose and throat surgery, to be given during March and April—Dr Charles R Stockard addressed the Medical Society of the County of New York, January 23, on "Endocrine Reactions and Genetic Quality" Dr Terry M Townsend presented his inaugural address as president of the society, entitled "Has Medicine Met Its Challenge?"

NORTH DAKOTA

Bill Enacted—H 117, requiring applicants for licenses to practice chiropractic to have a preprofessional education equivalent to two years of university work and permitting chiropractic licentiates to practice physiotherapy, electrotherapy and hydrotherapy, as taught by the chiropractic schools and colleges, but not to prescribe or administer any medicine or drug, included in materia medica, to be taken internally, nor to perform any surgery, nor to practice obstetrics, nor to use the title physician or surgeon, has become a law

OHIO

Rachford Lectures—Richard E Scammon, Ph D, professor of anatomy, University of Minnesota School of Medicine, delivered the third annual series of the Benjamin Knox Rachford Lectures at the University of Cincinnati School of Medicine, March 17-18 Dr Scammon's subjects were "Modes and Types of Human Growth" and "Growth and Function as Illustrated by the Development of the Human Vascular System" The first series of Rachford Lectures was given by Dr Leonard G Parsons, Birmingham, England, and the second by Dr Bronson Crothers, Boston

Personal—Dr William K. Ruble recently resigned as health commissioner of Wilmington, he will remain as health commissioner of Clinton County, he occupied both positions for several years—Dr William B Chamberlin has been reelected president of the Cleveland Association for the Hard of Hearing—Dr Lee H Mann, Columbus, recently celebrated the fiftieth anniversary of his entrance into medical practice with a reception at his home—Dr Jay S McCulloch has been elected health commissioner of Wellsville to succeed the late Dr Morris C Tarr

Society News—Dr Russell L Cecil, New York, addressed the Cleveland Academy of Medicine, March 17, on treatment of pneumonia A new section on military medicine was inaugurated at the academy, March 21, with an address by Col David Baker, on the work of the organized reserves—Dr Charles L Hartsock, Cleveland, addressed the Miami County Medical Society, Troy, March 3, on "Treatment of Common Gastro-Intestinal Disorders"—Dr George M Curtis, Columbus, addressed the Hancock County Medical Society, March 2, on thoracoplasty—Dr Ralph O Ruch, Lima, discussed diseases of the skin at a meeting of the Putnam County Medical Society, Ottawa, February 7—Dr Arthur C Ernstene, Cleveland, addressed the Portage County Medical Society, Ravenna, February 2, on "Coronary Thrombosis and Angina Pectoris"—Dr Argyl J Berms, Cleveland, was the speaker at a meeting of the Stark County Medical Society, Canton, February 14, on peptic ulcer—Dr Delvan A MacGregor, Wheeling, W Va, addressed the Belmont County Medical Society, Bellville, February 2, on

costs of medical care—Dr Herbert M Platter, Columbus, discussed socialization of medicine before the Crawford County Medical Society, February 6, at Bucyrus—Dr Charles A Doan, Columbus, addressed the Montgomery County Medical Society, March 17, on "The Present-Day Problem of Radioactivity in Medicine." At a meeting, April 7, Dr John H J Upham Columbus, will lead discussion of the reports of the Committee on the Costs of Medical Care

OKLAHOMA

Bill Introduced—S 327, to amend the dental practice act, proposes to make it unlawful for licensed dentists to publish or circulate statements as to their unusual skill or methods, or any advertising matter intended to induce patronage which will tend to commercialize or degrade the practice of dentistry

PENNSYLVANIA

Society News—Dr George E Tollansbee, chairman of the Judicial Council, American Medical Association, and Manuel C Elmer, Ph.D., professor of sociology, University of Pittsburgh, addressed a meeting of the Tenth Council District at Pittsburgh, March 7, on "Sickness Service for the American People."—Speakers before the Allegheny County Medical Society, Pittsburgh, February 21, were Drs Stanley Crawford on care of the skin, John P Griffith, jaundice, and Elvin J Bateman, Pittsburgh, management of salpingitis—Drs Grant E Ward, Baltimore, and Charles L Youngman, Williamsport, addressed the Lycoming County Medical Society, Williamsport, March 10, on "Treatment of Malignant and Allied Diseases of the Oral Cavity" and "Blood Transfusions," respectively—Dr Thomas G Simonton Pittsburgh, addressed the Cambria County Medical Society, Johnstown, March 9, on "Gastro-Enteroptosis Diagnosis, Treatment and Management" Dr Arthur C Morgan, Philadelphia addressed the society, February 9, on medical economics—Drs Laurie D Sargent and George W Ramsey, Washington, addressed the Fayette County Medical Society, Uniontown, February 2, on coronary disease—Frederick W Jobe, Rochester, N Y, addressed the Pittsburgh Ophthalmological Society, February 27 on "Influence of Physical Factors on the Functional Tests of the Eye"—Dr Arthur C Morgan, Philadelphia addressed the Dauphin County Medical Society, Harrisburg, March 7, on "Medical Economics and a Resume of the Report of the Committee on the Costs of Medical Care"—Dr Henry L Bockus, Philadelphia, addressed the Harrisburg Academy of Medicine, March 21, on "Newer Advances in Diseases of the Liver"

Bills Introduced—H 1284 proposes to create a board of chiropractic examiners and to regulate the practice of chiropractic Chiropractic is defined 'as the science of locating and adjusting the subluxations of the articulations of the human spine and its adjacent tissues and the procedure preparatory thereto without the use of drugs or surgery' H 1263 to amend the laws relating to the practice of optometry, proposes to permit licensed optometrists to treat diseases of or injuries to the human eye in emergencies and as first aid measures H 1265, to amend the laws relating to the practice of optometry, proposes, among other things, to designate that practice as the 'optometric profession' H 1266 proposes that whenever certificates of visual efficiency are required by law certificates of licensed optometrists shall be accepted H 1244 proposes to create a naturopathic board of education, examination and licensure and to regulate the practice of naturopathy Naturopathy is defined as 'the use and practice of that philosophy of healing embodying within itself a complete system of therapeutics, basing the treatment upon all of the physiological dysfunctions and abnormal conditions of the body on the natural laws governing the body and maintaining life further the correlation of part with part, anatomical physiological and chemical the treatment of the sick by any movements adjustments or manipulations performed by the hands or by any appliances and the use of any of the physical forces such as air light water heat electricity their derivatives or any other system or systems correlated with the above measures and the use and sale of harmless herbs and plants' Naturopaths however are not to be permitted to use drugs or to practice surgery or osteopathy H 1337 to amend the narcotic drug act proposes to classify marijuana as a narcotic

Philadelphia

Medical Economics Program—The Philadelphia County Medical Society held the third of a series of special meetings on medical economics March 8 with the following speakers Dr John Sneeve Compensation Insurance A Form of Group Practice, Mr William P Cavanaugh, manager, claim depart-

ment, National Bureau of Casualty and Surety Underwriters, New York, "Relationship Between Doctors and Insurance Companies in Reference to the Workmen's Compensation Laws" and Mr Stewart Brewster of Traveler's Insurance Company, "Local Problems in the Administration of the Workmen's Compensation Laws" Dr Morris Rosenthal, New York, discussed Mr Cavanaugh's address

Pathologists Celebrate Anniversary—The Pathological Society of Philadelphia celebrated the seventy-fifth anniversary of its founding at a dinner at the Hotel Pennsylvania, March 9 Honorary memberships were conferred on four American pathologists, who were present Drs Harvey Cushing and Frank B Mallory, Boston, and James Ewing and Karl Landsteiner, New York Drs Fielding H Garrison, Baltimore and David Riesman described contributions of the society and of pathology to medical knowledge An exhibit of memorabilia of the society was on view during the week of March 6 in the library of the College of Physicians of Philadelphia

RHODE ISLAND

Bill Introduced—S 80 proposes to accord to hospitals supported in whole or in part by charitable contributions and treating persons injured through the fault of other persons liens on all rights of actions, judgments, settlements, or compromises accruing to the injured persons by reason of their injuries

SOUTH DAKOTA

Change in Date of Meeting—The South Dakota State Medical Association will hold its fifty-second annual session, May 15-17, at Huron, with headquarters at the Marvin Hughitt Hotel, instead of May 23-25, as previously announced

Personal—The state board of health announces that Dr Hampton R Kenaston, Bonesteel, is no longer connected with the board and that inquiries pertaining to medical licensure should be addressed to Dr Park B Jenkins, director of medical licensure, Waubay

Society News—Dr John Mayo Berkman, Rochester, Minn., addressed the Sioux Falls District Medical Society in January on "Indeterminate Gastro-Intestinal Hemorrhage."—At the recent annual meeting of the Aberdeen District Medical Society, speakers were Drs Philip F Donohue, St Paul "Pathology of Bladder Neck Obstruction", Isaiah R Salladay, Pierre, "Ectopic Pregnancy," and Earle A Pittenger, Aberdeen, "Traumatic Surgery of the Extremities"

TENNESSEE

Bills Introduced—S 287 proposes to authorize the governor to appoint a public health council which shall formulate the policies of the department of public health and appoint the commissioner of public health H 496 proposes to require the board of medical examiners to issue licenses to practice medicine, without examination, in Hawkins County, to applicants who are more than 21 years of age, of good moral character and have been practicing medicine regularly and continuously for at least seven years H 552 proposes to give to hospitals treating persons injured through the fault of other persons liens on all rights of action, claims, judgments, settlements and compromises accruing to the injured person by reason of their injuries

VERMONT

Bill Enacted—H 7, authorizing the state board of health to spend \$8000 during the fiscal year 1934, and \$16000 during the fiscal year 1935, for the after-care and treatment of indigent persons suffering from infantile paralysis and for the purchase of necessary appliances, has become a law

WASHINGTON

Society News—Dr Morris Fishbein, Chicago editor of THE JOURNAL, addressed the King County Medical Society at a special meeting in Seattle, March 17, on "Changes in the Nature of Medical Practice" Dr Alton Ochsner, New Orleans, addressed a special meeting March 3, on complications of appendicitis Dr Ochsner was the guest speaker for the annual meeting of the Puget Sound Surgical Society in Seattle March 4 he conducted clinics and addressed an evening meeting on "Simple Relief of Intestinal Obstruction Versus Mechanical Stripping"—The Tacoma Surgical Club will hold its fifth annual day of intensive study April 8 with Dr Emile F Holman San Francisco as guest lecturer The day will be devoted to study of the circulatory system—Dr Richard B Dillehunt, Portland, Ore, addressed the Walla Walla Valley Medical Society Walla Walla March 9 on "Early Recognition of Bone and Joint Tuberculosis"

WEST VIRGINIA

Bill Introduced—S 121, to amend the workmen's compensation act, proposes to allow compensation to employees contracting silicosis in the course of their employment

GENERAL

Northern Tri-State Medical Association—The sixtieth annual meeting of the Northern Tri-State Medical Association (Indiana, Ohio and Michigan) will be held in La Porte, Ind., April 11. A symposium on fractures will be presented by Drs. Paul B. Magnuson, Harry E. Mock and Raymond W. McNealy, Chicago. Among other speakers will be

Dr. Russell M. Wilder, Rochester, Minn., Diseases of the Parathyroid, with Special Reference to Parathyroid Overfunction

Dr. Arthur E. Hertzler, Kansas City, Early Clinical Diagnosis of Diseases of the Mammary Gland

Dr. Henry A. Christian, Boston, Other Uses of Digitalis Than in the Treatment of Cardiac Decompensation

Dr. Charles A. Elliott, Chicago, Management of Hepatic Disease.

Dr. Charles P. Emerson, Indianapolis, will speak at the annual banquet on "Neuropsychoses from the Internist's Point of View."

News of Epidemics—Two hundred and thirty-six cases of scarlet fever were reported to be under quarantine in Watertown, N. Y., March 11, and fifty-two cases in Herkimer, March 1.—Efforts were being made to vaccinate all school children in Kenosha, Wis., in February following an outbreak of smallpox in the schools. The Kenosha County Medical Society set aside special days on which they vaccinated children, giving the treatment free to indigent persons.—Three hundred cases of German measles were reported in Grand Rapids, Mich., March 11.—In New York City, an unusual number of measles cases have been reported, 1,867 new cases during the week ended March 15. Big Rapids, Mich., reported that 150 students of the town high school were ill with measles early in February, and in Buchanan, Mich., thirty-five families were said to be in quarantine, March 2.

Medical Provisions of the Economy Bill—The half billion dollar economy bill, which became a law, March 20, contains numerous features of significance to the medical profession. Under its provisions (1) medical and hospital care will be provided only for war veterans with disabilities directly traceable to war service, but domiciliary care will be available to those with permanent disabilities although such disabilities were not incurred in actual service, (2) payment for non-service-connected disabilities will be discontinued except in cases of permanent disability, and (3) retired officers, including medical officers, will have their pay reduced and benefits to emergency World War retired officers will be limited to those injured in line of duty prior to the armistice. The new law grants authority to the President to fix the dates of the beginning and end of hostilities for purposes of compensation, which will eliminate many from the rolls whose services were before or after the actual start and finish of the war. Pensions and allowances of veterans of all wars prior to the Spanish-American War are cut 10 per cent. An amendment prohibits removal from the pension rolls of any Spanish-American war veteran past 62 years old. The administrator of veterans' affairs is ordered to review immediately all claims allowed under the previous laws covering veterans' benefits in order to determine those entitled to receive benefits. The act also vests in the Chief Executive authority to cut the compensation of all government officers, civilian and noncivilian, up to a maximum of 15 per cent, the reduction to be based on a comparison of living costs of 1928 with those of the last six months of 1932.

Medical Bills in Congress—*Changes in Status* H R 2820, to maintain the credit of the United States government, has been passed by Congress. With certain exceptions, this act repeals all public laws granting medical and hospital treatment for veterans and authorizes the administrator of veterans' affairs, under such limitations as may be prescribed by the President, to furnish to veterans medical and hospital treatment for diseases or injuries. H R 1718, introduced by Representative Celler, New York, and relating to the prescribing of medicinal liquors, has been ordered favorably reported by the subcommittee of the House Committee on the Judiciary. This bill is sponsored by the American Medical Association. *Bills Introduced* H J Res 4 introduced by Representative Blanton, Texas, proposes to direct the President of the United States to use the army, navy and marine corps, the militia of the several states and the resources of the government in suppressing all smuggling into the United States of intoxicating liquors and narcotics. H J Res 59 introduced by Representative Bland, Virginia, proposes to grant

permission to Hugh S. Cumming, Surgeon General, John D. Long, medical director, and Clifford R. Eskey, surgeon, all in the Public Health Service, to accept and wear certain decorations bestowed on them by the governments of Ecuador, Chile and Cuba, for assistance rendered in matters relating to sanitation and health. H R 12, introduced by Representative Boland, Pennsylvania, proposes to erect a veterans' hospital in Lackawanna County, Pennsylvania. H R 14, introduced by Representative Cannon, Missouri, proposes to require the discoloration of poisons which resemble commonly used food-stuffs. H R 34, introduced by Representative Evans, Montana, proposes to increase the pensions of persons who have lost the sight of both eyes in line of duty in the military or naval service of the United States. H R 101 and H R 103, introduced by Representative Wolverton, New Jersey, proposes to make it mandatory that the administrator of veterans' affairs hospitalize any veteran who has served ninety days or more during any war "if in the opinion of the administrator an emergency exists requiring immediate hospitalization." H R 117, introduced by Representative Gibson, Vermont, proposes to regulate the importation of milk and cream, and milk and cream products, into the United States. H R 122, introduced by Representative Goss, Connecticut, proposes to regulate the use and sale of wood alcohol. H R 128, introduced by Representative Harlan, Ohio, proposes to provide additional compensation to veterans for the loss of use of an eye in active service in line of duty in the World War. H R 131, introduced by Representative Harlan, Ohio, proposes to provide that certain veterans not honorably discharged shall be admitted to veterans' administration homes. H R 144, introduced by Representative McKeown, Oklahoma, proposes to create, under certain conditions, conclusive service-origin presumptions for paralysis, paresis and blindness. H R 1499, introduced by Representative Englebright, California, proposes to authorize the erection of a veterans' hospital in the inland region of California. H R 1524, introduced by Representative Fulmer, South Carolina, proposes to provide for cooperation with the several states in the care, treatment, education, vocational guidance and placement, and physical rehabilitation of persons under the age of 21 years, who have physical defects such as affections of the joints, affections of the bones, disturbances of neuromuscular mechanism, congenital deformities, static and other acquired deformities that may be corrected or improved by orthopedic surgery or other surgical and medical care. H R 1527, introduced by Representative Griffin, New York, proposes to provide for medals of honor and awards to government employees for distinguished service in science or for voluntary risk of life and health beyond the ordinary risks of duty. H R 1535, introduced by Representative Kahn, California, proposes to authorize the erection of a veterans' hospital in California to be used for the housing, care and treatment of disabled women veterans only. H R 1551, introduced by Representative Ludlow, Indiana, proposes to erect a 150 bed addition to the veterans' hospital at Indianapolis. H R 1635, introduced by Representative Luce, Massachusetts, proposes to create a commission to study the hospitalization of war veterans. H R 1686, introduced by Representative Mitchell, Tennessee, proposes to erect a veterans' hospital in middle Tennessee. H R 1704, introduced by Representative Rudd, New York, proposes to grant hospital treatment in government-owned hospitals to postal employees suffering from tuberculosis, nervous diseases or kindred occupational ailments. H R 1741, introduced by Representative Carter, California, proposes to erect a 250 bed addition to the veterans' hospital at Livermore, Calif. H R 1759, introduced by Representative James, Michigan, proposes that for purposes of promotion, longevity pay and retirement there shall be credited to the officers of the medical administrative corps of the Medical Department of the Army all classified service rendered as clerks in the military establishment prior to July 3, 1916. H R 1766, introduced by Representative Gambrill, Maryland, proposes to provide medical services, after retirement on annuity, to employees of the United States disabled by injuries sustained in the performance of their duties.

CORRECTIONS

"Increased Suspension Stability of Erythrocytes"—In the article by Dr. Kamil Schulhof in THE JOURNAL, February 4, in the fifteenth line from the bottom of the first column on page 319 the number of minutes should read 120 instead of ninety. Ninety minutes applies to women.

Internships for Creighton Graduates—In table 14 in the Educational Number of THE JOURNAL (Aug. 27, 1932, p. 744) Creighton University School of Medicine is credited with 14 internships for the graduating class of 1931. This figure was incorrectly recorded and should be 53.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Feb 25, 1933

A National Eye Service

Until recently, patients of limited means requiring advice concerning eyesight and unable to pay the fees of an ophthalmologist had to go to a hospital or to a sight-testing 'optician'. The latter is a man who sells spectacles and professes to test his customer's sight. He may have no knowledge of refraction or may have picked up a little and usually is untrained in diseases of the eye. Ostensibly he charges only for the spectacles supplied. The greater part of the spectacles worn in this country are obtained in this way. The sight-testing opticians formed an organization which provided a sort of training and applied to the government for registration, which would have given them the position of legally recognized practitioners. A committee was appointed by the government to report on the matter. The British Medical Association opposed the plan, holding that only qualified ophthalmologists should be recognized as capable of dealing with defects of sight. The association's representatives were informed by the committee that while it agreed that in the best interests of the patient the examination of his eyes should be carried out by an ophthalmologist, legal recognition could not be withheld from opticians unless an ophthalmic medical service was organized for the poorer classes at a cost compatible with what they could afford. The British Medical Association realized that a wider issue than ophthalmic service was at stake—the legal recognition of nonmedical persons for medical service. An Association of Dispensing Opticians (who supply spectacles only on the prescription of ophthalmologists and do no testing) was already in existence. In combination with them was formed the National Ophthalmic Treatment Board which produced a scheme by which the poorer classes can obtain an ophthalmic medical examination and glasses for inclusive standardized charges. The examination is carried out by practitioners whose qualifications and experience in eye work have been investigated by the Ophthalmic Committee of the British Medical Association. If the eye condition found requires extended treatment, the patient's physician will be so informed and any further treatment by the ophthalmologist will be a matter for separate arrangement. The persons eligible for this scheme are all those who are state insured under the panel system and their dependents and noninsured persons unable to make their own arrangements with an ophthalmologist, whose total family income does not exceed \$1,250 a year. The fee payable to the ophthalmologist is \$2.50. The service he is required to give comprises examination and prescription of glasses, if required, including the use of a mydriatic in cases in which this is necessary. When glasses are ordered, the whole charge for them and the examination begins at \$3.50 for the frames of white metal and increases for more expensive frames. The National Ophthalmic Treatment Board has established national eye service centers in the principal cities in charge of the dispensing opticians who are required to exhibit to all patients a complete list of the board's ophthalmic practitioners, from which the patient makes his selection.

This scheme has been brought into existence to counter the attempt of sight-testing opticians to obtain state recognition. For the first time a national service has been established without aid from or control by the government. Though connected with the administration of the national insurance act the scheme is independent of it and unlike it is not in any way socialistic. The following example of its working is given by the *British Medical Journal*. Out of 120 persons

seen by one ophthalmologist, 2 had been previously seen as private patients but would have been unable to continue attendance except under the new service. One might have been able to afford a \$5 fee. The remaining 117 would have gone either to the hospital or to a sight-testing optician. Six were subsequently admitted to a hospital, and 80 needed treatment in addition to glasses. If these patients had gone to sight-testing opticians they would have been put off with glasses, and the other treatment needed would have been neglected.

The Recognition of Indian Medical Degrees

The medical degrees of Indian universities were first recognized for registration in Great Britain by the General Medical Council in 1892. From 1922 onward, recognition was accorded only for limited periods, being extended from year to year as a result of reports of inspectors appointed by the council to investigate the medical examinations. Then the ill feeling aroused by the Indian political agitation caused trouble. Indian nationalism expressed itself in the refusal of the Indian universities to allow inspectors appointed by the British Medical Council to inspect their examinations (*THE JOURNAL*, April 12, 1930, p. 1156). This was represented as an indignity, although the Council was only following the practice in operation for British universities and colleges. Registration gave Indian graduates the right to practice in Great Britain, and the council was in duty bound to satisfy itself as to the standards maintained in India. The refusal of inspection of examinations therefore compelled the council to withdraw recognition of Indian degrees pending the establishment of a system maintaining adequate standards. This aroused further resentment and an all-India medical conference, held at Simla in connection with the maintenance of proper standards in provincial medical schools, passed a retaliatory resolution recommending the admission to the Indian Medical Service only of men holding qualifications registrable in India (*THE JOURNAL*, Aug. 9, 1930, p. 423). The withdrawal of recognition of Indian degrees has made it difficult for Indian graduates to pursue postgraduate work in England and to secure employment in the British dominions and colonies. A result is that a bill is to be introduced in the Indian legislative assembly for the establishment of an all-India medical council that would restrict the medical register to graduates and exclude diploma holders who undergo a shorter course of training and whose standard varies so much that they would not be recognized in other countries.

London Hospital Services

In addition to its voluntary hospitals, London has a large number of municipal hospitals which used to be under the control of local authorities but now have passed under the London County Council, with the result that their service has become more highly organized and more efficient, approaching the high standard of the voluntary hospitals. The London Voluntary Hospitals Committee and the London County Council have cooperated in the preparation of a joint survey of voluntary and municipal medical and surgical services in hospitals, clinics and dispensaries, with a view to greater cooperation between the two systems. The number of beds in the voluntary hospitals is 14,833. The total number of new inpatients treated in 1931 was 216,788. These hospitals maintain 239 operating theaters, where 123,312 operations were performed in a year. New outpatients amounted to 1,596,361 and their total attendances in the year to 8,355,756. Arrangements have been made for linking up for undergraduate educational purposes certain municipal hospitals with the London medical schools.

In a letter to the *Times* Dr. G. C. Anderson, medical secretary to the British Medical Association criticizes the employment by the council of whole time physicians for attendance on the sick door as they are thus denied the right of choos-

ing their medical attendant. The association holds that the employment of whole time physicians for one section of the population—the destitute section—is wrong in principle and disadvantageous to patient and physician. It is on free choice of physician that the association bases its policy for a general medical service for the nation. The employment of the part time medical officer who is at the same time in general practice is open to less objection. Although free choice is not enjoyed by the patient, the physician is not the “poor man’s doctor” alone. The association asks for a scheme, comparable to the national health insurance plan, which will permit any one in receipt of public assistance, not an inmate of an institution, to choose his own physician from the local area.

A Tribute to Sir Robert Jones

The colleagues, patients and friends of Sir Robert Jones desire to pay a last tribute to his memory, in recognition of his great services to surgery and to a multitude of patients and also to recall his work in the Great War. It is proposed to establish a fund for this purpose, from which there will be benefactions to Liverpool (the city in which he lived and did most of his work), to the Royal College of Surgeons, and perhaps to other bodies with which he was associated. A joint letter supporting this tribute to “the greatest orthopedic surgeon of all time” has been published in the medical journals over the signatures of Lord Derby, chancellor of the University of Liverpool and secretary of state for war during the Great War, Lord Moynihan, Sir Holburt Waring, president of the Royal College of Surgeons, other leaders of the profession, and distinguished foreign surgeons, such as the Mayos, Arthur Steindler, W. C. Campbell, De F. P. Willard, Putti, Nove-Josserand and Murk Jansen.

PARIS

(From Our Regular Correspondent)

Feb 8, 1933

The General Assembly of Medicine

The Assemblée générale de médecine, which meets in Paris twice a year, differs from the conventions of the learned societies, since it is organized particularly for the practicing physicians of France who meet to report observations made among their clientele, generally rural. Previous assemblies have dealt with papers on cancer and tuberculosis. The recent session, presided over by Professor Mauriac of Bordeaux, chose “Undulant Fever” as the chief topic for discussion. Undulant fever has invaded nearly the whole French territory, and it may be discovered almost anywhere if a careful search is made. Often the disease presents mild or benign types that pass unnoticed. The most important foci, of sheep or goat origin, are in southern France. In the department of Bouches-du-Rhône, the mortality from undulant fever corresponds to that from typhoid fever, in the Vaucluse region, it tends to be even higher. In Pyrenees-Orientales, undulant fever is the most widespread disease of animal origin. In Lot-et-Garonne, which is some distance from these two foci, eleven cases have been reported. In Doubs, still farther removed, twenty-eight cases have developed in farmers caring for cows infected with infectious abortion. Undulant fever occurs now in the more central departments heretofore immune. It does not exist north of Paris, and it becomes more rare as one gets away from the highways commonly traversed by ambulant herds. Several departments in which sheep raising is an important industry are free of the disease. Undulant fever is brought about chiefly by direct contact with animals. It may originate from goats, sheep, cattle, horses or dogs. Man appears to be less receptive to *Alcaligenes abortus* than to *Alcaligenes melitensis*. Clinically undulant fever appears to present more serious complications at certain periods. In some years only general symptoms are noted, while of late one has observed

the invasion of the visceral organs, and the nervous and hepatic symptoms are assuming increasing importance. The hip joint is most commonly affected. The evolution of undulant fever extends over a long period (from seven months to two years) and develops in the form of paroxysmal attacks. The pain is difficult to combat, but the prognosis is generally favorable and recurrences are unknown. Although a protean disease, undulant fever sometimes simulates pulmonary tuberculosis, rebellious rheumatism, hepatitis and even a nervous disorder. A blood culture is the only sure biologic test. Serodiagnosis is valuable. As a form of treatment the physicians of Doubs recommend especially neoarsphenamine, while the physicians of Pyrenees-Orientales hold that protein therapy (injection of milk) gives the best results but at the price of severe general reactions. In Isère, more favorable results have been secured with vaccine. As to prophylaxis, the physicians of Aude emphasize the importance of educating the stock raisers, calling their attention to the significance of limping due to arthritis and to the importance of not housing goats and cows in the same stable and of never mixing their milk. On account of the part that ambulant herds play in disseminating the disease, the physicians of Vaucluse think that stricter regulations concerning their movements should be imposed. The physicians of Pyrenees-Orientales demand regulations controlling the migrations of ambulant herds, the cleaning of sheepfolds and the disposition of excrementa.

Physical Examination for Drivers of Automobiles

The question of a medical examination for drivers of automobiles has come up again before the Academy of Medicine, as a result of a communication from Professor Cazeneuve and Mr. Tanon, to whom is entrusted the medical examination of automobile drivers at the prefecture of police of Paris. This examination is compulsory in Paris for drivers of public vehicles having a seating capacity for eight persons. The ministerial decree of April 1, 1930, which established this examination, does not apply to the provinces, where there is an increasing number of public vehicles that carry a large number of passengers. Cazeneuve expressed his surprise at this laxness. On a previous occasion, these authors reported that the examination carried out at the prefecture of police had enabled them to eliminate applicants suffering from dementia paralytica, tabes, heart disease, and other incapacitating diseases. They submit proof that the occupation of automobile driver may, if the driver’s seat is inside or the car is poorly ventilated, bring on eye disorders, the prodromes of syncope, due to the action of gas fumes. Inequality of the pupils in some classes of professional drivers seems to occur in about 10 per cent of the subjects submitting to an examination. The fuel most used in France is composed of impure hydrocarbons—often of industrial benzol, sometimes mixed with denatured alcohol. Certain impurities, such as thiophene in the benzols may increase the toxicity, likewise carbon monoxide may be incriminated. The compulsory examination of automobile drivers is eminently desirable. The reason that it has not been more generally adopted is that there are several hundred thousand persons who would have to be examined. At the rate of 100 examinations a day, it would require several years to complete the process, and as the physicians making the examinations would have to receive a fee, it would require a large expenditure of money.

Ruins of an Old Temple

Excavations that have been made in Burgundy, at Saint-Germain Sources Seine, the source of the river that flows through Paris, have unearthed Roman ruins showing that this spot was formerly the site of important hot baths. Vestiges of a temple 70 meters long and 25 meters wide, dedicated to Dea Sequana, the goddess of the Seine, have been found. Excavations have revealed the existence of a reservoir 80 meters long and 25 meters wide, which, formed of concrete from 50 to

80 cm thick, held the water from various springs that fed it. It appears that these springs possessed a high medicinal value. The numerous ex-votos collected in the temple are evidence of this fact. For example, along with objects reproducing in bronze diseased members, such as eyes, hands, and even a woman's breast, there was found a head, carved in stone, of a bearded man, while near the right ear there was a protuberance that might represent a tumor, there was also a bronze depicting a case of orchitis in a young man. Formerly, therefore, the sources of the Seine were regarded as miraculous. Furthermore, up to the nineteenth century, Paris physicians attributed to the waters of the Seine, even when collected at Paris, remarkable therapeutic properties in diseases of the kidneys and the liver. They are strongly charged with calcareous salts, brought in by its principal tributary, the Marne. Today, owing to the sewage of many cities emptying into it, the Seine has become an immense sewer, the waters of which are dangerous—even for bathing purposes.

BERLIN

(From Our Regular Correspondent)

Feb 20, 1933

Opinions on the Effects of the Economic Situation on Health

The effects of the economic situation on health is one of the great questions for the heads of the public health service. It is interesting to note how medical officials of the *Krankenbassen* have expressed themselves on the question. In an industrial suburb of Berlin, the official has been unable to observe any unfavorable effects. He explains the unusually low morbidity by the fact that, under present conditions, there has been an increasing elimination of chronic patients from gainful occupations, which results in a more restricted selection of workers, from the standpoint of health. The reduced number of cases due to minor illnesses is a welcome effect growing out of present conditions. A medical official of central Germany points out that the morbidity among the unemployed is greater than that of insured members who are employed but that the unemployed are less inclined to report sick and hence give a false impression that the unemployed constitute a favorable risk. The true morbidity is not reflected in the figure showing incapacity to work but rather in the totality of cases of illness. Undue delay in consulting a physician is observed more frequently among the unemployed. Another medical official in the Rhineland notes that the group of persons who have remained at work is composed mostly of the more favorable risks, from the standpoint of health, and that because of the smaller number of persons employed, the number of accidents has declined. However the morbidity among persons receiving welfare aid has increased so that the total morbidity appears to be greater than formerly. There are also more frequent instances of premature enrolment among the class of invalids. A colleague in Bavaria has observed no evidence of increased transmission of diseases other than in the increased spread of disease in individual families. The psychopaths, weaklings and persons undergoing more or less rapid physical decay, since they seldom find employment are gradually being eliminated from the care of the sick benefit associations.

In Hamburg, while there has been a decrease in the number of persons reporting sick there has been an increase in the average duration of incapacity to work which was 35.91 days in 1930 and 40.66 days in 1931, and likewise an increase in the average period of hospitalization (35.0 days as against 32.3). The number of patients cared for by the welfare authorities is today usually greater than that receiving aid from the sick benefit associations. The reduced privileges as to hospital care for an insured member's family will doubtless result in some unfavorable manifestations. The bad conditions under which the unemployed live at least offset the absence of occu-

pational injuries. While it is doubtless true that formerly undue demands for medical aid were made, the present minimum of living requirements is sure to exert in the long run a damaging influence on health.

Finally, a hygienist of a commune points out that unemployment among men reduces exposure to tuberculosis almost to the vanishing point, whereas in women the good effects of enforced leisure are offset in some cases by domestic employment and repeated pregnancies, including many miscarriages. From this survey it will be seen that a uniform picture of conditions throughout the *reich* can hardly be gained, in spite of the good organization and honest attempts to facilitate a general survey of conditions.

Voluntary Work Service for Unemployed Young People

As a manifestation of the economic stress, particularly as it affects the youth, the idea arose of providing the younger generation an opportunity to direct their energies into healthy channels. Hence the federal government issued two decrees, as of July 23, 1931, and July 16, 1932, with a view to establishing what has been termed 'a voluntary work service.' The movement has met with a measure of success, for by Sept 1, 1932, 144,000 voluntary workers had been enrolled in this service. The question was first raised as to whether a voluntary work service or a legally established compulsory work service should be created, and it was decided in favor of the former. The voluntary work service makes its appeal to all young Germans, without distinction as to occupational or professional training, social position or political and religious views, belonging to the 18 to 25 age groups. A plan is being considered to create also a working year (or half year) for our university graduates. The number of young men belonging to these age groups (18-25) is placed at 4,000,000, although only 1,000,000 are actually unemployed. The work to be performed must be of a useful nature—for the most part in the country. The types of work chiefly considered are improvements, laying out of roads and paths, cultivation of waste lands, and the like. During their period of service, the work volunteers are insured against sickness and accident. The sponsors of the work are the authorities of the *reich*, the *länder*, the provinces, the circles (corresponding in general to the English county), the cities, and the welfare juvenile leagues. For every voluntary worker the federal government pays 2 marks a day (about 48 cents) to the respective sponsors of the work which the sponsors are required to expend (without deductions) in providing shelter, board, clothing and pocket money for the workers—usually for periods of twenty weeks, although in the case of important economic enterprises the time may be extended to forty weeks. A like sum (2 marks a day, Sunday excluded) is credited to the voluntary worker if he works for a longer period, and these credits may be used in acquiring a small tract of land as a homestead. Great importance is attached to the strengthening of the volunteer workers from physical, mental and moral points of view. Physical exercises, games and the like are provided to that end. Shelter is supplied in specially established camps. Special attention is given to the training of leaders. The conduct of the voluntary work service has been placed in the hands of a federal commissary, who is aided by the heads of the thirteen labor bureaus in the respective *länder*. For each voluntary worker about 1,000 marks, or \$238 is expended each year. On Aug 1 1932, the federal commissary had 50,000,000 marks, or \$11,900,000 at his disposal for this purpose. The details of the regulations affecting the voluntary work service have not yet been announced.

Vendors of Fraudulent Radium Apparatus

Vendors of fraudulent radium apparatus are becoming numerous, as may be seen from an announcement of the Hamburg Aerztokammer (chamber of physicians), which appeared also in the daily press. The Hamburg Aerztokammer has

been repeatedly informed of late that patients have been seriously injured and grossly cheated by irresponsible traveling salesmen who sold them so-called radium compresses, radioactive drinking water, radium beakers, radioactive inlay soles, and the like. The names and addresses of sufferers were procured usually at public gatherings at which the healing of all sorts of diseases was discussed. In a few instances, the agents assumed the role of physician or nurse. The patients received at ridiculously high prices preparations that could not possibly do what was promised, and that, for the most part, had no therapeutic value whatever in the disease in question, nor did they have any prophylactic value. Patients are therefore warned not to waste their money on apparatus that has only oratory and vain promises as a basis for its effectiveness.

ITALY

(From Our Regular Correspondent)

Jan 31, 1933

The Otoneuro-Ophthalmologic Congress

The third congress of the Società otoneuro-oftalmologica and the first congress of the Società radio-neurochirurgica were recently held jointly at Bologna. Professor Ceni spoke on the reactions concerned in the conception of vitalism. According to the vitalistic conception, all the manifestations of psychic and organic life, taken as a whole, consist of cerebral reactions indissolubly connected with one another and induced by external stimuli. The most important reactions are those originating by way of the organs of sight and hearing. Experiments conducted on deaf and blind animals by the speaker and his "school" over a period of forty years have demonstrated that, through the action of psychosensory traumas, there intervenes in animals a state of psychic impairment comparable to a true dementia and not unlike that which follows cerebral injuries. Strong arguments support the theory of the existence of absolutely distinct cerebral centers that are the seats of congenital and acquired forces. The congenital forces, which represent the impulses and the aptitudes peculiar to individual species (instincts), are always located in the anterior segments of the brain. The acquired forces are adapted, through the sensory stimuli from without, to the recognition and the evaluation of the images destined to stimulate the impulses, and are localized in the posterior segments of the brain.

SURGERY OF THE HYPOPHYSIS

"The Present Status of Surgery of the Hypophysis" was presented by Professor Cavina, who discussed the indications for the removal of the hypophysis, which consist essentially of tumors and of certain chiasmal syndromes of probable pituitary toxic origin, which the speaker was the first to describe. He explained the various routes suggested by surgery for reaching the hypophysis. On the basis of reasonably comprehensive statistics, he stated that the operative mortality and the recurrences (owing to the skill of experienced neurosurgeons) are comparatively low. The operation results in the recovery of sight and in the improvement of the symptoms of altered trophism. Radiologic treatment of hypophyseal tumors was first attempted in Italy in 1908 by Gramegna of Turin and has been found useful in certain types of slow evolution as supplementary to surgery.

Hirsch spoke on operative interventions on hypophyseal tumors by his transseptal method. He secured favorable results in a series of 233 cases. He was able to follow the history of fifty-seven patients for from four to thirteen years after the operation, and in forty-one of them there were no recurrences.

Palumbo explained the details of the technic of radium therapy in tumors of the hypophysis and the paranasal sinuses.

Verzella noted gradual improvement of the visual field in a patient affected with hypophyseal tumor and treated with

roentgen rays. He followed up this case for four years. He attributed the improvement to a diminution of the pressure that the anterior cerebral arteries exerted on the optic chiasm when the latter is pushed upward by a tumor.

OPTIC NEURITIS OF SINUS ORIGIN

The second topic, "Optic Neuritis of Sinus Origin," was presented by Professors Di Marzio and Ferreri. They operated on thirty patients with various lesions of the optic nerve and impairment of vision. The majority of the patients were relieved by opening the ethmoidal and sphenoidal sinuses, even those who presented no clinical or radiologic evidence of sinusitis. The improvement usually took place rapidly, sometimes within twenty-four hours. In some cases the improvement was gradual, extending over months or even years.

Weill presented a paper in which he classified the various types of retrobulbar neuritis into chronic forms found in diabetic patients, alcohol addicts and inveterate smokers, and optic neuritis proper. Of the forms without ophthalmoscopic signs, Weill distinguished two types, the typical and the atypical. Typical neuritis is generally unilateral and acute and occurs in persons from 15 to 35 years of age. It is often the first sign of multiple sclerosis. The atypical form is subacute and is sometimes bilateral, in addition to the central scotoma there is also a peripheral narrowing, often temporary, of the visual field. He stated that the typical forms heal spontaneously, while the atypical form may be improved by operation. Weill has observed, however, that many cases of atypical retrobulbar neuritis are not due to sinusitis but to disorders of the sella turcica, especially tumors about the optic nerve.

Giussani pointed out that sometimes the only clinical manifestation of a hyperplastic sphenoidal sinusitis is an impairment of the vision. Sometimes there are intense headaches associated with neuralgia and sympathetic disturbances.

Salotti examined 500 craniums radiologically, and found about 130 cases of chronic sinusitis. In the greater part of these he found that both the ethmoids and the sphenoids were involved.

Silvagni discussed the relation between the functioning of the hypophysis and the chronic inflammatory sinusitis. He found in most cases observed a hypofunction of the hypophysis, the significance of which has not as yet been fully explained.

Venereal Disease in the Army

In 1922 the Sanita militare adopted regulations designed to reduce the danger of contagion from venereal diseases among the soldiers. The regulations are based on the following principles: moral and hygienic training given to the soldiers, the creation in all barracks of special rooms for prophylaxis against venereal disease, protection of infected persons, and isolation and treatment of patients until they are not infectious. The results have been excellent. In 1921 the number of soldiers treated for the first time was 18,000 (5,000 of whom had syphilis), in 1922 the number so treated increased to about 12,000, and in recent years (from 1928 on) a total of about 5,000 new cases each year has been reported. The prophylactic measures adopted have given the most favorable results with syphilis, there were admitted to the military hospitals 4,811 patients in 1921, 3,245 in 1922, and 761 last year.

Professor Boveri

The death of Prof. Pietro Boveri, instructor in neuropathology at the University of Turin, is announced. He began his career in the University of Pavia and spent several years of study in the institutes of Paris and London. On returning to Italy he became department head in the Clinica delle malattie del lavoro, in Milan. During the war he served as director of neurologic centers in Alexandria and Genoa and later was called to the neurologic center in Milan. In addition to several works on clinical medicine he published several volumes on neurologic

subjects His contribution to the study of familial hypertrophic neuritis led to the recognition of a clinical form termed the "Pierre-Marie-Boveri" type. In syringomyelia, he described a peculiar change of the skin, which he termed "lizard skin" He called attention also to the presence of a subungual ridge in lesions of the median nerve His name is chiefly known to neurologists on account of the Boveri test with potassium permanganate applied to the cerebrospinal fluid

Professor Sanarelli Honored

The Faculté de médecine de Paris has conferred on Professor Sanarelli, director of the hygienic institute of the University of Rome, the degree of doctor honoris causa During the ceremonies at the Sorbonne, Professor Balthazard, dean of the faculty of medicine, recalled some of the principal researches of Sanarelli, namely, on typhoid, cholera and anthrax, the theory of heredo-immunity to tuberculosis, and the discovery of the ultrafiltrability of the virus through semipermeable membranes Professor Sanarelli was also recently appointed an honorary member of the society of tropical medicine in Paris

JAPAN

(From Our Regular Correspondent)

Jan 28, 1931

The Census for 1930

The national census taken in the fall of 1930 showed that the total population of the Japanese Empire was 90,396,045, according to official figures announced by the home office Of this total, 64,450,005 persons were registered in Japan proper 21,058,305 in Chosen, 4,592,537 in Formosa, and 295,198 in the Japanese portion of Sakhalin There were 330,000 more men than women in Japan proper In point of density of population, Japan proper had an average of 436 persons per square mile, while for the empire the figure was 346 per square mile Formosa came second with 330 inhabitants to the square mile, Chosen third, with 247, and Sakhalin last, with 24 Among the prefectures, Tokyo ranged first in density of population with 6,531 per square mile, while Hokkaido came last with 82 These figures are based on a total area for the empire of 260,704 miles In point of comparison, Java and Madura have a density of population of 836, Belgium, 686 England, 734, Germany, 345, France, 191 4, and the continental United States, 41 3 Japan's population classified according to age shows 23,502,000 persons below the age of 14 years, 35,827,000 between the ages of 15 and 59, inclusive, and 4,737,000 above the age of 60 The census figures indicated that in October, 1930, a total of 29,220,000 persons, or 45 6 per cent of the total population, were employed The following are the figures classified according to occupations agriculture 14,156,030, marine product industry 568,040, mining, 236,180, commerce, 4,463,110, industry, 5,290,560 communications, 1,108,560, domestic, 806,000 others, 2,592,070

Memorial Ceremony for the Late Baron Aoyama

Under the joint auspices of the Tokyo Imperial University Medical Department, the Japan Internal Disease Society and the cancer research institute a memorial ceremony was held, January 23 for the late Baron Dr Tanemichi Aoyama He is here regarded as the greatest physician that Japan has known in the past sixty years The ceremony was attended by more than 1,000 persons in the great hall of the Tokyo Imperial University He died fifteen years ago His followers now occupy most of the important positions in medical circles of this country He was the founder of the cancer research institute a member of the house of peers and a professor at the Tokyo Imperial University To commemorate the occasion important papers were read by Drs Mitamura, Tamura and Iurutake

The Number of Physicians

The excess of physicians and the turning out of more than 3,000 graduates from the medical colleges each year have been said to be the cause of the economic situation among the practitioners According to an official report, the total number of them at the beginning of 1932 was 49,681, of whom 45,582 were clinicians There were 7 07 clinicians per 10,000 of population Now, the number is 48,098, of whom 44,889 are clinicians This is a decrease of 1,583, of whom 1,493 are clinicians They are divided into

	1932	1933	Change
City practitioners	19,026	10,727	701 increase
Town practitioners	13,219	12,806	413 decrease
Village practitioners	13,337	12,356	981 decrease

The table shows that the remarkable decrease in towns and villages is a result of the concentration of practitioners in the cities The graduates of medical colleges this year also will be obliged to stay in the greater cities instead of going into the country The city practitioners will therefore have a harder time in the future, while the villagers will be left without doctors

Traffic Accidents in Tokyo

Tokyo sees fatal traffic accidents every day "Speeding up" is threatening the inhabitants Even street cars, which have long been complained of as being slow, are now speeding up The taxicabs dash hastily to and fro The metropolitan police bureau reports that there were 35,650 accidents in this city in 1932, 441 persons being killed and 21,068 badly hurt Compared with the previous year, the dead increased by 120 and the injured by 1,930 The chief offender is the motor-car, which causes 70 per cent of the accidents The business depression places cab drivers in severe competition, they overwork and become tired and weary and violate the speed limit The proportion of motor-cars is 1 to 250 persons

THE NETHERLANDS

(From Our Regular Correspondent)

Feb 2, 1933

Statistics on Tuberculosis

The 1930 report of the director of the Amsterdam association for the combating of tuberculosis indicates that the regular decline of mortality from tuberculosis in Amsterdam and in the Netherlands as a whole has been continued The mortality rate of tuberculosis in Amsterdam is lower for men than for women There have been no changes in the organization of the consultation centers of the district A characteristic feature of this organization is the cooperation between the association, the physicians, the public health service and the ministry of labor As for methods employed, the attempt to search out all patients having open pulmonary tuberculosis has come to the fore The number of children treated with BCG vaccine increased in 1930, and no harmful effects were observed The general impression with regard to its value is favorable The results of the Pirquet reaction on 22,694 children, aged 0-14 for the years 1920-1930 and the year 1930, show that the percentage of positive reactions is diminishing every year

With reference to urban and rural tuberculosis, Dr Josephus Jitta has published some interesting figures The mortality rate in 1930 was only 7 31 per 10,000 inhabitants During the period 1921-1930, the decline in tuberculosis mortality was 50 per cent for the cities and 33 per cent for the rural districts The mortality from tuberculosis has increased considerably in children under 1 year of age

Public Health Congress

The thirty-seventh Public Health Congress, held in Amsterdam, comprised two sections the congress proper and the preliminary meeting of various health commissions, at which

the chief topic on the program was "The Removal and Disposal of Garbage in Small and in Large Communes." Professor Van Loghem emphasized that a modern system of garbage removal must meet the following conditions. It must cause no embarrassment to the community, it must be as economical as possible, and it must satisfy the needs of public health. The two systems that best meet these conditions are incineration and transformation into fertilizing material. Dr. Van Mannen described the system in use in The Hague. It consists in transporting the garbage to Drentha, where it is spread out and left for about two months to allow biologic processes to take place, it is then collected and sold to farmers for fertilizing purposes.

The congress proper dealt with the topic "Mental Hygiene." Dr. C. T. Kortenhorst spoke on welfare meetings designed to promote the mental health of the population. Dr. F. S. Meyers, in a paper entitled "A Communal Service of Mental Hygiene," described the organization that he founded in Amsterdam. Professor Van der Scheer emphasized the importance of organizations of this kind for the mental health of the people.

Association for the Study of Social Medicine

At the annual meeting of the Association generale pour l'etude de la medecine sociale, W. L. L. Carol spoke on "Infection of Man by Animals." One common infection is due to *Trichophyton faviforme-album*, which is communicated to man through contact with cattle or other domestic animals. Hammer spoke on "Cases of Sudden Death," which must not be confused with unexpected death and accidental death. The cases of sudden death are, for the most part, due to arteriosclerosis of the coronary arteries or to syphilis of the aorta.

The School of Medicine at Batavia

Prof. C. Bonne, president of the faculty of the school of medicine in Batavia, reports that the attendance at the school is increasing rapidly and on August 1 had reached a total of 313. The number of students entering the freshman class, after graduation from a secondary school, is increasing, the totals for the past five years having been 27, 33, 36, 62 and 67, respectively. If the number of admissions continues to increase at that rate, the school will have to be enlarged or the school at Surabaya will have to be transformed into a university. It is interesting how the students not supported by the government are distributed among the various races. Since the school opened, 62 Europeans, 92 Chinese and 82 natives have been enrolled. The Chinese are in the majority. By means of scholarships, the government exerts a certain compensatory influence. The important question is to find room and accommodations for such a large number of students. From the standpoint of the results of examinations, conditions are not so good as they are with respect to attendance. There are too many students who enroll before they receive an adequate secondary education. The Chinese are the most successful in passing their examinations. If things go on unchecked, before long the school will be graduating only Chinese physicians, a fact that merits the attention of every one.

Marriages

GERALD TRESLAR WATTERSON, Glenwood, Ind., to Miss Iona Mae Brandenburg of Connersville, February 14.

WILLIAM CHARLES BOSWELL, Macon, Ga., to Miss Doris Elizabeth Glisson, January 7.

LEON WATSON, Broadway, N. C., to Miss Anne Sheppard of Charlotte, January 25.

H. CROSKY ALLEN to Miss Helen Cuddy, both of Norristown, Pa., recently.

Deaths

Henry George Mehrtens ☉ San Francisco. Stanford University School of Medicine, San Francisco, 1913, acting dean and professor of medicine (neuropsychiatry) at his alma mater, member of the American Neurological Association, American Psychiatric Association and the Association for Research in Nervous and Mental Diseases, on the staff of the Lane Hospital, aged 49, died, February 28, of heart disease, following influenza.

Alexander E. Stepfield, Doylestown, Ohio, Homeopathic Hospital College, Cleveland, 1883, member of the Ohio State Medical Association, past president of the Wayne County Medical Society, formerly member of the school board and county coroner, aged 75, died, February 24, in the Akron City (Ohio) Hospital, of pneumonia, following an operation for gastric ulcer.

John Osgood Rush ☉ Mobile, Ala., Medical Department of the University of Alabama, Mobile, 1904, fellow of the American College of Surgeons, urologist to the City Hospital and Dispensary, Providence Infirmary, the U. S. Marine Hospital, and the Florence Crittenton Boys' Detention and Girls' Detention Homes, died, February 14, of heart disease.

William Taylor Logsdon, Wichita, Kan., University of Louisville (Ky.) School of Medicine, 1889, Chicago Homeopathic Medical College, 1902, member of the Kansas Medical Society, served during the World War, for many years on the staff of the Wichita Hospital, aged 74, died, February 13, of cardiorenal disease.

George F. Woodring, Bartlesville, Okla., Hospital College of Medicine, Louisville, Ky., 1876, member of the Oklahoma State Medical Association, on the staff of the Washington County Memorial Hospital, aged 76, died, February 24, of pneumonia, following phlebitis of the saphenous vein.

Samuel Ross Crothers, Chester, Pa., University of Pennsylvania School of Medicine, Philadelphia, 1889, member of the Medical Society of the State of Pennsylvania, formerly mayor of Chester, aged 66, on the staff of the Chester Hospital, where he died, February 19, of Hodgkin's disease.

Emma Scribner MacKay Appel ☉ Chicago, Northwestern University Woman's Medical School, Chicago, 1901, for fifteen years medical examiner of the vocational guidance bureau of the board of education, aged 57, died, March 4, in the Women's and Children's Hospital, of cirrhosis of the liver.

Earle Harrison Coon, Excelsior Springs, Mo., Marion-Sims-Beaumont Medical College, St. Louis, 1903, member of the Missouri State Medical Association, served during the World War, aged 52, died, February 17, in St. Luke's Hospital, Kansas City, of peritonitis.

John Waterhouse Daniel, St. John, N. B., Canada, Bellevue Hospital Medical College, New York, 1865, M. R. C. S., England, 1867, formerly mayor of St. John, oldest member of the Canadian Senate, aged 87, died, January 12, of complications following influenza.

Joseph Robert Simpson ☉ Miami, Fla., Medical College of Virginia, Richmond, 1909, past president of the Association of Seaboard Air Line Railway Surgeons, on the staff of the Jackson Memorial Hospital, aged 51, was found dead, February 13, of heart disease.

William Henry Slocum, Long Branch, N. J., University of Pennsylvania School of Medicine, Philadelphia, 1892, served during the World War, formerly president of the board of health, aged 64, died, February 9, of chronic myocarditis and coronary thrombosis.

Gustav H. R. Schroepfel, Collinsville, Ill., St. Louis College of Physicians and Surgeons, 1892, member of the Illinois State Medical Society, aged 64, died, February 3, in St. Mary's Hospital, East St. Louis, of shock following a prostatectomy.

Addison Bybee ☉ Milford, Utah, College of Physicians and Surgeons, Medical Department of the University of Illinois, Chicago, 1906, on the staff of the Livermore (Calif.) Sanitarium, aged 56, died, Nov. 21, 1932, of influenza and pneumonia.

William Satterlee Leavenworth ☉ Surg., Lieutenant Commander, U. S. Navy, Mare Island, Calif., Medical School of Maine, Portland, 1916, entered the Navy in 1917, aged 42, died, Nov. 29, 1932, in San Diego, of meningitis and bronchopneumonia.

Edwin Elisha Swift, New York, Medical Department of the University of the City of New York, 1880, member of the Medical Society of the State of New York, aged 77, died, March 2, of arteriosclerosis and chronic myocarditis

John Howard Kauffman, St Paul, Medical Department of the University of the City of New York, 1884, formerly a druggist, aged 73, died, January 7, in St. Joseph's Hospital, of intestinal obstruction and mesenteric thrombosis

Arthur Leon Grover ♂ Reno, Nev Harvard University Medical School, Boston, 1903, member of the American Association of Pathologists and Bacteriologists, aged 56, died, January 28, of disease of the coronary arteries

George H Carey, Los Angeles, Hahnemann Medical College and Hospital, Chicago, 1900 member of the California Medical Association, aged 56, died, January 31, when he jumped from a ninth story window

Francis M Mueller ♂ Lawrenceburg, Ind, University of Louisville (Ky) School of Medicine, 1895, past president of the Dearborn-Ohio County Medical Society, aged 59, died, February 14, of heart disease

Horace Robert Skinner, Toppenish, Wash, Washington University School of Medicine, 1928, member of the Washington State Medical Association, aged 32, died, January 6 of bronchopneumonia

Max I Blowstein ♂ New York, University of Basel Medical Faculty, Basel, Switzerland, 1917, aged 41, died, January 31, in the Mount Sinai Hospital of acute yellow atrophy of the liver

James Franklin Hedrick, Weatherby, Mo, Barnes Medical College, St Louis, 1904, member of the Missouri State Medical Association, county coroner, aged 61, died, January 31, of heart disease

Dorothy Jean Burrows, Harriston, Ont Canada, University of Toronto Faculty of Medicine, 1922, aged 34 died, Dec 7, 1932, as the result of a peanut lodging in a bronchus early in September

Samuel Horace Littlefield ♂ Boston, Harvard University Medical School, Boston, 1892, aged 63, died, February 8, in the Brooks Hospital, Brookline, of carcinoma of the sigmoid and duodenal ulcer

Mitchell Walter, Bethlehem, Pa, Medico-Chirurgical College of Philadelphia, 1893 member of the Medical Society of the State of Pennsylvania, aged 65, died, Dec 5, 1932, of angina pectoris

Freeman Clarke Hersey, East Corinth Maine Medical School of Maine Portland 1873 member of the Massachusetts Medical Society, aged 90, died, February 4, in Bangor, of pneumonia

William James Harvey, Jr, Philadelphia Howard University School of Medicine Washington, D C, 1910, on the staff of the Mercy Hospital, aged 47, died, February 6, of heart disease

Benjamin Rulon Smith, Cambridge City, Ind, Starling Medical College, Columbus, Ohio, 1870, Civil War veteran aged 90 died, February 10, of arteriosclerosis and cerebral hemorrhage

Louis Philippe Howe, San Francisco, Medical Department of the University of California San Francisco 1908 fellow of the American College of Surgeons, aged 52, died, January 20

William Bullard Jordan, Ocala Fla Atlanta Medical College, 1915 member of the Florida Medical Association and the South Carolina Medical Association, aged 40, died January 17

John Eugene Stinson, Chickasha Okla University of Nashville (Tenn) Medical Department 1870 Confederate veteran aged 84 died February 17, of pneumonia, in Oklahoma City

John J Trichel, Houston Texas Eclectic Medical University Kansas City Mo 1903 aged 52 died January 31 in the Park View Hospital, of injuries received in an automobile accident

Francis S Stevenson, Aurora Mo Beaumont Hospital Medical College St Louis, 1888 member of the Missouri State Medical Association, aged 73 died February 10, of heart disease.

Christopher May Thornton, Rovalton Ill Louisville (Ky) Medical College 1876 member of the Illinois State Medical Society aged 82 died February 9 as the result of a fall

Robert Purnell Floyd, Louisburg, N C, Medical College of the State of South Carolina, Charleston, 1878, formerly member of the state legislature, aged 78, died, January 10

Thomas Cottrell Brooks, Los Angeles Illinois Medical College, Chicago, 1904, member of the California Medical Association, aged 58, died, January 9, of cerebral hemorrhage

Jacob Goldberg, Buffalo, University of Buffalo School of Medicine, 1885, for fourteen years chairman of the board of education, aged 69, died, February 22, of coronary thrombosis

Hannes Inberg, Danville, Va, Bennett College of Eclectic Medicine and Surgery, Chicago, 1906, aged 53, died, January 27, of heart disease, on a train, while enroute to Philadelphia

Adolph Roos ♂ Forest Park, Ill, Rush Medical College, Chicago, 1887, aged 74, died, Dec 23, 1932, at his home in Oak Park, of cardiac hypertrophy with decompensation

Thomas Henry Blow, Calgary, Alta, Canada, McGill University Faculty of Medicine Montreal, Que, 1895, aged 70, died suddenly, Dec 27, 1932, in Vancouver, B C

Maurice Moray Armstrong ♂ Los Angeles, University of Southern California College of Medicine, Los Angeles, 1902, aged 59, died, February 6, of agranulocytic angina

John Thomas Kimsey, Latihop, Mo, University Medical College of Kansas City, 1899, member of the Missouri State Medical Association, aged 80, died, January 22

William Oliphant Stewart, Guelph, Ont, Canada, University of Toronto Faculty of Medicine, 1888, for many years member of the school board, died, Dec 25, 1932

Hugh M French, Yakima, Wash, Tennessee Medical College, Knoxville, 1897, member of the Washington State Medical Association, aged 60, died, January 16

George Gaston Lewis, Lakewood, N J, Medical Department of the University of the City of New York, 1888, aged 66, died, February 13, of cerebral hemorrhage.

Marvel Smith Lingo, Newark, Md, University of Pennsylvania School of Medicine, Philadelphia, 1910, aged 44, died, February 22, in a hospital at Salisbury

George Wesley Peart, Burt, Mich, Detroit College of Medicine, 1893, served during the World War, aged 62, died, January 22, in St. Mary's Hospital, Saginaw

John Henry Sweet, Jr, Newport, R I Harvard University Medical School, Boston, 1898, aged 58, died, January 17, in the Newport Hospital, of pneumonia

William J C Corse, Baltimore, University of Maryland School of Medicine, Baltimore, 1872, aged 87, died, Dec 21, 1932, in the Sheppard-Enoch Pratt Hospital

John Newell Waggoner, Canton, Mo Yale University School of Medicine, New Haven, Conn, 1909, aged 48, died, February 11, of a self-inflicted bullet wound

Buchanan Caldwell, Biggs, Calif, Medical Department, University of Tennessee, Nashville, 1887, aged 76, died, January 15, of chronic interstitial nephritis

Arthur Hamilton Schuyler ♂ Rochester, N Y, Albany (N Y) Medical College, 1905, aged 50, died, February 17, of a self-inflicted bullet wound in the head

Mortimer Jesurun, Long Beach, Calif, Medical Department of the University of the City of New York, 1892, aged 72, died, January 31, of cerebral hemorrhage.

Carter Weisiger, Cumberland, Va, University College of Medicine, Richmond 1896 member of the Medical Society of Virginia, aged 57, died, Dec 30, 1932

Green W Campbell, Hazard, Ky, University of Louisville (Ky) School of Medicine, 1911, aged 55, died, February 12, in the Hazard Hospital, of nephritis

James G Clyne, Lakewood, Ohio Cleveland Medical College, 1876, aged 83, died, February 15, of injuries received when he was struck by an automobile

Raymond G Richards ♂ Grand Rapids, Mich, Rush Medical College, Chicago, 1901 on the staff of the Butterworth Hospital aged 54, died, January 24

William Harry Nelson ♂ Ruskin, Neb, University of Illinois College of Medicine, Chicago, 1910, aged 59, died, February 25, of coronary thrombosis

Parley Leon Holman ♂ Mount Pleasant, Utah, Washington University School of Medicine St. Louis, 1923, aged 41, died Nov 1 1932, of heart disease

Victor Sterki, New Philadelphia, Ohio University of Berne Faculty of Medicine Berne, Switzerland, 1878, aged 86, died January 25 of arteriosclerosis

Charles Rush Gray, Trenton Fla, Loyola University School of Medicine, Chicago, 1918, aged 42, was found dead in bed February 1, of heart disease

Frank Lambert King, Omaha, Pulte Medical College, Cincinnati, 1888, aged 72, died, January 12, in St Luke's Hospital, of gangrene of the foot

Emil Theilmann, Kansas City, Mo., Kansas City Homeopathic Medical College, 1897, aged 68, died, Dec 28, 1932, of carcinoma of the colon

Allan Lincoln Shirley, East Bridgewater, Mass., Medical School of Maine, Portland, 1890, aged 68, died, February 20, of coronary thrombosis

Guy Filby Palmer, Ucluelet, B C, Canada, McGill University Faculty of Medicine, Montreal, 1885, aged 70, died suddenly, January 4

Hervy C Way, Long Beach, Calif., College of Physicians and Surgeons, Keokuk, Iowa, 1887, aged 82, died, January 10, of arteriosclerosis

James E Elliott, Detroit, Detroit College of Medicine, 1901, member of the Michigan State Medical Society, aged 58, died, January 23

James H Atlee, Chattanooga, Tenn., Jefferson Medical College of Philadelphia, 1886, served during the World War, died, January 31

Thompson Seiser Westcott, Philadelphia, University of Pennsylvania School of Medicine, Philadelphia, 1886, aged 70, died, January 28

Walter V Havens, Headleys Corners, Ohio, Starling Medical College, Columbus, 1886, aged 73, died, Dec 18, 1932, of heart disease

John Wesley Smith, Burlington, Iowa, Barnes Medical College, St Louis, 1903, aged 63, died, February 18, in the Mercy Hospital

Marcus Lafayette Bryant, Pulaski, Ky., University of the South Medical Department, Sewanee, Tenn., 1906, aged 79, died, January 9

George F Whitney, Pottsville, Pa., University of Pennsylvania School of Medicine, Philadelphia, 1883, aged 68, died, Dec 25, 1932

Horace Ray Elliott, Niagara Falls, Ont., Canada, University of Toronto Faculty of Medicine, 1902, aged 52, died, Dec 19, 1932

Henry Juren, Oklahoma City, University of Halle, Germany, 1878, aged 82, was found dead in bed, Nov 7, 1932, of heart disease

Andrew Haig, Campbellford, Ont., Canada, Queen's University Faculty of Medicine, Kingston, 1891, aged 66, died, Dec 6, 1932

James Osborne, Redwood City, Calif., University of Glasgow Medical Faculty, Glasgow, Scotland, 1872, aged 84, died, January 4

Alva Claude Surber, Muncie, Ind., Baltimore Medical College, 1895, aged 61, was found dead, January 27, of poisoning

Catalino Nicolas, Manila, P I, University of St Thomas College of Medicine and Surgery, Manila, 1892, aged 62, died recently

John Albert Couch, Toronto, Ont., Canada, Faculty of Medicine of Trinity College, Toronto, 1885, died, January 11

Robert Lee Hackworth, Coral Ridge, Ky., Hospital College of Medicine, Louisville, 1889, aged 70, died, January 11

Samuel Houston Clemons, Chattanooga, Tenn., Meharry Medical College, Nashville, 1909, aged 55, died, January 18

Louis Herman Grunig, San Francisco, Hospital College of Medicine, Louisville, Ky., 1895, aged 71, died, January 24

Frances Sarah Conaway Saunders, Los Angeles, Iowa Medical College, Des Moines, 1886, aged 80, died, Dec 9, 1932

Wilson McKenery Moore, Los Angeles, Jefferson Medical College of Philadelphia, 1904, aged 57, died, January 21

George E Davis, San Francisco, Hahnemann Medical College of Philadelphia, 1873, aged 86, died, January 30

Frederick Albert Schock, Los Angeles, Medico-Chirurgical College of Philadelphia, 1889, aged 65, died, January 8

Thomas Hamilton Payne, Friendship Ind., Louisville (Ky.) Medical College, 1871, aged 88, died, January 5

Robert H Reeves, Paulsboro, N J, Jefferson Medical College of Philadelphia, 1883, aged 72, died, January 7

James H Ashlock, Glendale, Ky., University of Louisville School of Medicine, 1875, aged 76, died, January 13

Thomas A Wood, Bybee, Tenn., Chattanooga (Tenn.) Medical College, 1898, aged 63, died, January 13

Thomas Nelson Kraus, Lenoir City, Tenn. (licensed, Tennessee, 1889), aged 73, died, January 1

Correspondence

CORRECTION OF PROGNATHISM OF THE LOWER JAW

To the Editor—Recently my attention was called to a communication by Dr Robert H Ivy (THE JOURNAL, Dec 31 1932) criticizing an article by Pettit and Walrath (THE JOURNAL, Dec 3, 1932). Apparently his perusal of this article was hasty or casual. In the references quoted he proves that this is really a new procedure for the correction of prognathism, and at the same time he shows an unfamiliarity with either his own references or with our article. The operation of Dufourmentel, to which he refers, is entirely different, is a destructive procedure, shortens the total length of the ramus and its appendages, leaves a flail joint structure with a definite disturbance of muscle attachment, and from an anatomic consideration creates the "makings" of the unfortunate open bite. None of these disadvantages exist in the technic which Walrath and I advocate.

He refers to my statement that in operations heretofore described the bone fragments after section are fastened together with wire or plates or other foreign material. As proof of this, I quote his own writings and need only refer to the textbook by Blair and Ivy (of which he is co-author) "Essentials of Oral Surgery," published by the Mosby Company in 1926, wherein he makes the following statement: "We would not dispense with the lower fixation (of the bone fragments) in this operation. *Proper fixation* here consists of fastening the cut bones with silver wire or chromicized catgut at their lower borders."

Dr Ivy's conception of a temporomandibular arthroplasty may be the destructive procedure of a removal of the mandibular head and neck, embodying the destruction of important anatomic structures. The real surgical temporomandibular arthroplasty does not do this but instead consists of the making of a new joint by a fibrous union in the neck of the condyle, accurately constructed, permitting a backward bow without displacement, without shortening of the ramus, without interference with muscle attachment or function, without destruction of anatomic form. This type of temporomandibular arthroplasty was advocated by Murphy for ankylosis only. We are now advocating it for prognathism and those mandibular displacements wherein a double joint with the resulting increased motion will so readily restore any deformity caused by some unnatural relationship of the mandibular body and its ramus.

JOSEPH A PETTIT, M D, Portland, Ore

INSTRUMENTS OF PRECISION—AND EXPENDITURE

To the Editor—In the diagnosis of disease the physician relies on a number of scientific factors. Most important of these are (a) the past history of the patient, (b) his present history, (c) his symptoms and (d) the signs. These are of increasing scientific importance in the order given.

On the signs of disease the modern physician stakes most of his clinical skill, his confidence in them being won by the fact that they are objective in character, while the symptoms of the patient are subjective. To evaluate the importance of signs accurately, the physician resorts to instruments of precision when his analysis of the case needs logical support. Thus, various physical and chemical examinations demonstrate signs more clearly that might escape detection by the naked human senses.

For several reasons these instruments of precision have a special interest for the hospital administrator. First of all, though not the most important reason, they represent an item of expense in purchase and in maintenance. The tendency to

lean on them for the purpose of saving time and error in clinical judgment is greater than it ever was among medical men inside the hospital, whether the patient can afford it or not, and outside the hospital, if the patient can afford it. On theoretical grounds, at least, no one can take issue with the physician when he orders roentgenograms, cardiograms, metabolism tests and other expensive physical, chemical, bacteriologic and serologic examinations in progressively greater quantities from the laboratories. Hard times do not stay the march of scientific progress, the physician would rightly argue, and therefore the hospital must bow to the inevitable if it would maintain a progressive scientific standard of diagnostic service. The tactful administrator could, of course, ask the medical board of the hospital to express an opinion on subjects like these. It is more than possible that they, under the sobering influence of financial stress, might be willing to accept the limitation of expensive diagnostic tests to those cases authorized by the senior members of the staff, and then only after careful clinical inquiry as to need. The intern who orders x-ray films taken of "all the long bones" during the course of the "work-up" of a case on the chance that one of them might be the seat of a metastatic growth in a case of advanced cancer might be able to make out a fair case for scientific research but not for any routine advantage in the care of the patient, who might indeed miss something important when the doctor assigned to him depends too much on instruments of precision and too little on his clinical senses.

But it is not with the financial aspect of cost alone that we are concerned. The prick of a needle for the purpose of drawing a drop of blood for examination is mild compared to the indiscriminate use of the cystoscope, the bronchoscope and the vaginal speculum (to mention only a few) in sensitive human beings. Just how much meddling there is with the therapeutic laws of nature no one can say, perhaps because no one will, nor is the administrator privileged to question the scientific practices of his medical staff. But the medical board, which presumably consists of the elders of the medical staff, should be consulted freely in doubtful cases when the administrator, who enjoys their confidence, may be surprised to learn how much they will be able and willing to control improper, harmful or wasteful examinations that can bring small good to any one, even in an educational or investigative way.

E M BLUESTONE, M D, New York

Director, Montefiore Hospital

WOHLFAHRTIA MYIASIS

To the Editor—In THE JOURNAL, February 18, I note an article on Wohlfahrtia Myiasis in North Dakota. Since the authors state that the search of the literature fails to reveal another identified case involving the eye, may I call attention to the fact that in the American Encyclopedia of Ophthalmology, volume XII, page 9350, is an article I wrote on parasites.

This states that the oldest recorded case of ophthalmomyiasis was recorded by Salzman in 1718. It gives a brief account of a child whose eyes had both been destroyed by maggots. More recent cases in 1853 and 1903 are briefly described with references in that article. Others might be cited concerning Wohlfahrtia. All these cases are in children and involve the eye.

This flesh fly is widely distributed violent in its attacks, and not infrequently chooses the eye. Reported cases are frequently in children however others on record involve adults even 67 years of age.

Persons resting or sleeping in the open air during the warmer part of the day are especially exposed to danger of being infected.

HENRY B WARD, Urbana, Ill

Professor of Zoology and Head of the

Department, University of Illinois

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

CONTRAINDICATIONS TO SPINAL PUNCTURE

To the Editor—Please state the contraindications to making spinal punctures for diagnosis. Please omit name. M D, Texas

ANSWER—Infections of the soft tissue through which the needle must be inserted, such as erysipelas or cellulitis of the back, constitute a contraindication to spinal puncture. If there is a local infection in the lumbar region and cerebrospinal fluid must be removed for diagnosis, some other route, such as the cisternal or ventricular (in infants), should be used.

Deformity of the spine in the lumbar region constitutes a contraindication to spinal puncture, as there is danger of breaking the needle. In cases of caries of the spine, especially if due to a tuberculous infection, spinal puncture is contraindicated, not only because of the deformity but also because there is danger of producing a meningitis by accidentally inserting the needle into the diseased soft bone and releasing organisms into the subarachnoid space.

Spinal puncture should not be done during a convulsion, as the sudden release of pressure may cause herniation of the brain and death. In addition, there is also danger of breaking the needle. It is therefore desirable to wait until the convulsions have ceased before spinal puncture is attempted. If the convulsions are continuous, it may be necessary to give an anesthetic before doing the puncture. In tetanus, spinal puncture is not contraindicated but is often hard to perform without an anesthetic, because of the rigidity of the spine.

There is no uniformity of opinion as to whether or not spinal puncture is contraindicated in cerebral hemorrhage and in brain tumor. Most neurologists believe that massive recent intracranial hemorrhage in the adult constitutes a contraindication to spinal puncture, especially if the hemorrhage is thought to be due to small ruptured aneurysms of the vessels of the brain or to hemorrhage of the middle meningeal artery. The removal of cerebrospinal fluid, it is argued, may disturb the clot and start a fresh hemorrhage. Most pediatricians do not consider this objection to hold good in intracranial hemorrhage of the new-born.

Some neurologists hold that brain tumor, especially one in the neighborhood of the third ventricle and at the cerebello-pontile angle, constitutes a contraindication to spinal puncture, because of the danger of herniation of the brain. Others, however, do spinal punctures in cases in which brain tumor is suspected or is known to exist. Spinal puncture should be done with caution in all cases of brain tumor, and only small amounts of fluid should be removed.

It is inadvisable to do a spinal puncture in any of the exanthems as for instance in scarlet fever, although a report has been published of a large series of cases in which cerebrospinal fluid was removed by the lumbar route in a number of such cases, with apparently no ill effect.

The question as to whether or not spinal puncture is contraindicated in septicemia has not yet been settled. It has been found by several observers that in some cases of septicemia the mere removal of cerebrospinal fluid may cause a meningitis. However, if only a small amount of the fluid is removed slowly, spinal puncture is not only permissible but often indicated.

LOSS OF SALT AND WATER BY PERSPIRATION

To the Editor—I have just read with much interest the editorial on perspiration and sweat in THE JOURNAL, Dec 3 1932. Many years ago when hot and tired and sweating from bicycling I discovered that a draft of common table salt in a glass of water was far more refreshing and invigorating than any of the drinks I could get along the road. Now when golfing (at 72) and sweating and when plain water at the fountains does not seem to go anywhere or relieve thirst I find that the addition of salt is a prompt and noticeable stimulant. I have often wondered whether phosphates would not be even better but the commercial phosphates are sweetened and leave a drugstore taste. Does the Na of the salt take part in neutralizing the acidity of fatigue or does the NaCl supply only the salt lost in the sweat? Any comments will be very acceptable.

H C. WORTHINGTON M D Oak Forest, Ill

ANSWER—Profuse sweating results in a loss not only of considerable volumes of water but also of surprisingly large quantities of salt. It is well known that the physiologic integrity of the neuromuscular mechanism is highly dependent on the presence of inorganic ions, some of which exert specific effects but the sum total of which controls the normal osmotic

relationship in the organism. A rapid dilution of intravascular and interstitial fluids diminishes the osmotic pressure with the result that, until readjustment is made either by ingesting salts or by excreting the excess water, subjective symptoms occur varying from mild fatigue and lassitude to actual muscular cramps in man and convulsions and death in experimental animals. Among stokers, iron workers and miners, such cramps occur in individuals who, during severe sweating, drink large quantities of water. It has been shown that the seizures do not occur if salt solution is consumed instead of water, furthermore, appetite is maintained and a feeling of vigor and freshness after the hard day's work has been noted.

These observations confirm those of the correspondent. The beneficial effect of salt solution is due to the replacement not only of fluid volume but of salt as well. As recent studies show that relatively little of the acid of sweat is neutralized by base, the favorable influence of salt appears to depend largely on its replacement of a depleted supply. There is so little phosphate lost in sweat that it seems doubtful whether this compound would exert the beneficial effect of sodium chloride.

EROSION AND DECAY OF TEETH IN DIABETES

To the Editor—A man, aged 53, has had diabetes since 1924 and has been taking from 40 to 50 units of insulin daily since then. His condition is entirely satisfactory except that he has noticed that the four upper incisors have eroded to such an extent that at present the condition is not only unsightly but also interferes with mastication and speech. The other teeth have also shown some erosion but not nearly as much as those mentioned. He does not use a pipe or a cigaret holder. A number of dentists have informed him that it was most unusual even in a diabetic patient to have the incisors erode so rapidly and to such a degree. All report porcelain jackets the only corrective measure. I take it that the condition is caused by the loss of certain chemical properties of the teeth and probably by the diabetes. I also realize that, in the case of the incisors, the only measure remaining is corrective dentistry. What is the cause and what can prevent this condition occurring in the remaining normal teeth? Please omit name.

M D, Florida

ANSWER—It is not clear from the description that this is erosion, it may be gingival-third decay. However, it is assumed that it is erosion and not decay. Its connection with diabetes is not noted in the American literature, but Romer and others describe it as one of the mouth complications of that disease, involving usually the anterior teeth, incisors, cuspids and premolars. The causation is hidden in obscurity, mechanical factors, disease of the adjacent labial or buccal mucous and parotid glands, disorders of metabolism and exposure of the necks of the teeth to acids have been mentioned. It is more common in high-strung subjects under conditions of high nervous and mental strain. Consumption of excessive amounts of grapes and citrus fruits are frequently associated with erosion. Incorrect and overzealous brushing of the teeth with abrasive dentifrices should be given consideration. The disease runs a fluctuating course and may undergo a spontaneous remission. Prevention is concerned with the elimination, as far as possible, of the items listed, especially excessive brushing with abrasive dentifrices. Ordinary fillings are not satisfactory, although in favorable cases, if the margins can be widely extended, they may serve a useful purpose. Perhaps the best practice is to delay this form of treatment until the defects are of such a character as to require porcelain crown restorations, as in this case. Extreme sensitiveness of the dentin at the base of the defect can be controlled by the application of some such drug as silver nitrate. Treatment and prevention, because of the uncertainty as to the etiology, are, at the best, largely experimental and far from satisfactory.

TREATMENT OF DANDRUFF OR SEBORRHEIC DERMATITIS

To the Editor—What is the best method of handling a bad case of dandruff? In this case it is truly a seborrheic dermatitis. Scabs form on the scalp in three or four days and there is a similar dermatitis between the shoulders. The only thing that has ever afforded any relief has been frequent washing. If not washed every few days, the scalp itches intensely and there is a continuous downpour of dandruff (epithelial debris, as the "cosmetologists" call it). Please omit name.

M D, Texas

ANSWER—On recently inflamed areas of seborrheic dermatitis it is desirable to use soothing lotions or ointments, such as used in acute dermatitis. From the brief description, it is assumed that the scalp will tolerate a pomade such as salicylic acid, from 5 to 10 grains (0.3 to 0.65 Gm), precipitated sulphur, 10 to 20 grains (0.65 to 1.3 Gm), petrolatum or liquid petrolatum, 1 ounce (30 Gm). This is applied daily to the scalp. As soon as improvement begins, it can be applied every second or third day. By care in parting the hair and rubbing in the

pomade, it can be applied to the scalp with little greasing of the hair. When the hair becomes greasy from the use of such an application, it should be shampooed, a liquid soap is most convenient for this, but any toilet soap may be used.

On the back ointments furnish the best form of application in seborrheic dermatitis. The applications for non-hairy skin should be weaker than those used on the scalp. The following is a good formula: salicylic acid, from 5 to 10 grains (0.3 to 0.65 Gm), precipitated sulphur, 10 to 30 grains (0.65 to 2 Gm), ointment of zinc oxide, 1 ounce (30 Gm). This should be applied twice a day and allowed to grease the underwear, so that slight application is constant.

LOSS OF ENAMEL FROM DECIDUOUS TEETH

To the Editor—A child of 15 months has the normal number of erupted teeth. The upper incisors have no enamel at all and have been gradually broken and worn away to short stumps. The process has been going on about six months. When first erupted, they were covered with enamel. At present they do not cause pain and there is little inflammation of the gum, there being none at all except around the upper incisors. A sister, aged 3 years, has large areas of caries on the upper incisors on the labial surface. There is no gingivitis. The mother, aged 25, has begun getting caries in the upper incisors on the outer surface. Her teeth with this exception are perfectly formed and she says that her "double teeth" are her deciduous teeth. The children were breast fed until 9 months of age, and have received cod liver oil since the age of 2 months. They live on a farm and have plenty of milk and green vegetables. The children received little sunshine the past summer because of weather conditions and "neighbors." Is the condition hereditary, a congenital defect in formation, and lack of vitamin D? What is the prognosis as to the permanent teeth? What treatment would you suggest. All appear perfectly normal otherwise. The 15 month child is walking and very active. Kindly omit name.

M D, Washington

ANSWER—Occasional cases are seen in which the deciduous teeth are worn away rapidly, regardless of the presence or absence of well formed enamel. There is no evidence that this is due to lack of proper formation of the teeth. Possibly the most encouraging statement is that this condition of the deciduous teeth seems to have no relation to the permanent teeth, which are likely to be normal. The fact that the mother's deciduous molar teeth are retained, which probably indicates that the bicuspid of the permanent set are missing, suggests the possibility of a shortage of bicuspid in the dentures of her children.

The dentist should take the best possible care of the deciduous teeth of the children, at least until it is definitely determined that the bicuspid are present.

ALLERGY TO QUININE

To the Editor—A boy, aged 6, is allergic. The sensitiveness manifests itself by urticaria and skin rashes. The causative agent has not been determined but it is nonseasonal. He has chronic malaria with the following blood picture: red blood cells 3,950,000, white blood cells 10,400, hemoglobin 58 per cent, polymorphonuclears 31 per cent. There is no past history of his taking quinine. He was given quinine in doses of 2 grains (0.13 Gm) three times a day in the form of a chocolate flavored quinine preparation (the patient is not sensitive to chocolate or cocoa) and after the third dose a diffuse skin rash developed with excessive itching over the entire body. I should appreciate any suggestions as to how to handle this case.

FRANCIS E. SULTZMAN, M D, Hannibal, Mo.

ANSWER—When a patient with malaria develops urticaria after taking quinine, it is almost certain that the patient has an idiosyncrasy (hypersensitiveness) to that drug. To give more quinine would probably be inviting further trouble, as he might then develop symptoms of bronchial asthma or rhinitis, in addition to the urticaria. An intracutaneous injection of 0.02 cc of a 1:1,000 dilution of quinine sulphate, along with a control test with physiologic solution of sodium chloride, for example, can be made and would probably be positive for the quinine.

Fortunately, as shown by W. T. Dawson and F. A. Garbade (*Idiosyncrasy to Quinine, Cinchonidine and Ethylhydrocupreine*, THE JOURNAL, March 8, 1930, p. 704), quinidine can be substituted for quinine. Those who are hypersensitive to quinine (the levorotatory alkaloid) can safely take quinidine (its dextrorotatory isomer). Therefore the boy should be given quinidine sulphate instead of quinine. The dose of quinidine sulphate should be small at first (about 2 grains, or 0.13 Gm), it can then be gradually raised to as much as 30 grains (2 Gm) daily, because of its slowing effects on the heart muscle, caution should be exercised. It should not be used at all in cases of cardiac decompensation. If quinidine is not available, one can dissolve quinine in water and add a little dilute hydrochloric acid.

PLACENTAL WASSERMANN TESTS OR CORD BLOOD EXAMINATIONS

To the Editor—Will you please furnish me with statistics concerning the reliability of placental Wassermann tests obtained at the time of delivery. At the Long Beach Community Hospital we are taking placental Wassermann tests as a routine procedure. How much more accurate would tests be taken on the mothers before delivery? If the latter should be adopted as a routine, would there be any advantage in continuing the placental tests also?

THEODORE A STRANG MD Long Beach Calif

ANSWER.—It is assumed that by "placental Wassermann tests" is meant cord blood examinations. There is far from being any general agreement as to the dependability of cord blood Wassermann tests. Browning and Mackenzie (Recent Methods in the Diagnosis and Treatment of Syphilis, London, Constable & Co, 1924, p 240) report Wassermann examinations on cord blood of eighty-eight cases in which either the infants or the mothers were syphilitic. Of this number, thirty-one gave positive and fifty-seven negative reactions. Kolmer (Serum Diagnosis by Complement Fixation, Philadelphia, Lea & Febiger, 1928, p 499) asserts that while a negative Wassermann reaction is inadequate evidence of the absence of syphilis, a positive reaction means syphilis in both mother and child. Williams (Obstetrics, New York, D Appleton & Co, 1930, p 749) reports 1 per cent false positive Wassermann reactions in a group of 5,000 cord blood examinations. He considers also a negative reaction as undependable in eliminating syphilis. Cord blood is apt to be anticomplementary, which may help explain the limited value of the Wassermann results reported. Data are presented in a recent report (*Arch Dermat & Syph* 26 597 [Oct.] 1932) in which the Kahn reaction proved superior in sensitivity and specificity to fourteen different Wassermann methods but no mention is made of this reaction in cord bloods. Serologic tests on the mother's blood during pregnancy cannot take the place of examinations of cord blood, which represents the fetal circulation.

PREGNANCY IN YOUNG GIRL

To the Editor—1 A few days ago I was called to see a child scarcely 14 years of age who the mother thought had appendicitis. Examination revealed a seven months pregnancy which the child admitted. She also confessed that her brother 18 years of age was the cause of the pregnancy. What I desire to know is: What are the chances that the child has of normal delivery? I could not take her pelvic measurements at the time and I have not seen her since. 2 Will the baby show signs of degeneracy of mind and body? 3 Am I compelled by law to report this case of incest to the proper authorities? Please omit name.

MD Ohio

ANSWER—1 The chances that this child has a normal delivery are good. Easily 80 per cent of such cases do not result in dystocia, that is, of course, if the pelvic measurements are normal.

2 There is no reason why the baby should suffer in mind or body unless one or both parents have signs of degeneracy. So far as we know there is no law compelling physicians to report such cases.

HYPERTROPHIC SCARS OF PALM OF HAND

To the Editor—Kindly let me know what the latest treatment of hypertrophic scar of the palmar surface of the hand is. It is of eight months duration and is about 3 inches long. Kindly omit name.

MD New York.

ANSWER.—The treatment of hypertrophic scars of the palmar surface of the hand depends on the cause, the width of the scar, and the presence or absence of a resulting contraction of the fingers. Narrow scars tend gradually to soften and diminish in size and are best left alone.

If the scar results from a drawing in of tissues from the surrounding area following the loss of a considerable amount of tissue, it is often wise to excise it completely, permit the tissues that have been drawn in to return to their normal position and then fill the defect immediately with a full thickness graft of skin the exact size of the defect itself. Such a graft can be obtained from the thigh or the abdominal wall.

INJECTION OF VARICOSE VEINS OF ABDOMEN

To the Editor—I have a patient with a mass of varicose veins on the lower part of the abdomen just above the pubes. Would it be safe to inject these with sodium morrhuate the same as I would if they were on her leg?

C W LION MD Ellinwood Kan

ANSWER.—The appearance of varicosities above the pubic region suggests an obstruction in the iliac or femoral vein on the same side. No mention is made of the history of a deep thrombosis, which was followed by abdominal varicosities. But

even in the absence of such a history, small pelvic clots, so-called silent clots, which accompany childbirth, may be responsible for collateral venous dilatations. The questions that must be answered, before an obliteration of these varicosities may be safely undertaken, are as follows: 1 Is there a latent pelvic phlebitis present, which could be activated by injections? A thorough pelvic examination must be made. Tender, palpable clots in the parametrium, vague, low abdominal pain aggravated by changes in the weather are suggestive of "resting infection" in the pelvic veins and contraindicate obliterative treatment, at least for the time being. 2 Has the original obstruction been overcome by canalization and other channels, or are the abdominal veins still functioning as active collaterals? To answer this question, the direction of blood flow in the abdominal varicosities must be studied. If a reverse flow—that is, toward the lower extremities—can be demonstrated, the new veins are superfluous and may be obliterated. The treatment of this type of varicosity requires considerable experience and should be undertaken with caution.

MIGRAINE WITH OCULAR PRODROMALS

To the Editor—In 1916 while I was undergoing considerable eye strain my vision suddenly became blurred as if atropine had been instilled. At that time I was 19 years old and in good physical condition. This blurring lasted for about two hours. The next day while writing an examination the same condition recurred. I insisted on writing and in a few minutes could not read at all. At that time refraction revealed astigmatism of 0.25 diopter at 90 degrees and glasses were prescribed. The same blurring recurred about eleven months later. The glasses were made slightly stronger and the blurring recurred about eight months later. The new glasses worn for close work only, were about +0.5 diopter. This blurring recurred more frequently and began to leave me with a dull occipital headache lately several times a week. The ophthalmologists have blamed the liver—the difference in strength between the adductor and abductor muscles and so on. Examination during this blurring does not disclose anything. The pupils are not dilated there are no hemorrhages. Mostly this blurring occurs while reading looking at the light from a window or looking away from bright to dark and vice versa. It still lasts about an hour and leaves me feeling bad for the rest of the day with the dull occipital headache. Physically there is nothing wrong and my habits are regular. The last correction was Right +50 Cyl axis 90 Left +12 Sph +37 Cyl axis 90. Please advise diagnosis and treatment. Kindly omit name.

MD Michigan.

ANSWER.—Judging from the symptoms, this sounds much like a case of mild migraine with ocular prodromes. If that is the case, the eyes have nothing to do with the cause of the blurring, which is now believed to be accounted for by a spasm of the retinal arteries. A certain percentage of cases of true migraine can be relieved by the use of cannabis, phenobarbital or other measures. A course of treatment in the hands of a competent neurologist is suggested.

HYPOTHYROIDISM AND ARRHYTHMIA

To the Editor—Please inform me whether you know of any book, medical journal or references to the effect of hypothyroidism on the disturbance in the rhythm of the heart or the pulse beat. I have Du Bois's 'Basal Metabolism, Berkeley's 'Endocrine Medicine', Wiggers' 'Circulation in Health and Disease', Vaquez and Laidlaw's 'Diseases of the Heart and Falta's 'Endocrinology'. These are not explicit enough or complete.

MD, Texas

ANSWER.—There is no cardiac arrhythmia that is the result of hypothyroidism per se. Arrhythmia may be present in a case of hypothyroidism but it is a function of some other disturbance than the hypothyroidism itself. The pulse is most frequently slow in this condition.

TESTS FOR SYPHILIS

To the Editor—1 Is the Wassermann test on blood from the umbilical cord dependable? 2 Is the Kahn test dependable? ('cord blood') 3 Does ether or nitrous oxide anesthesia have any effect on either test?

F E CLOW MD Wolfboro N H

ANSWER.—1 A dependable Wassermann method generally gives dependable results also on cord blood. The serum from such blood shows a mild tendency toward nonspecific fixation of complement (anticomplementary action), which the serologist can readily overcome.

2 The Kahn test, not being influenced by anticomplementary properties of serum, is generally accepted to give dependable results with cord blood.

3 No extensive studies are available on the effect of anesthesia on the serology of syphilis. Studies carried out soon after the development of the Wassermann test indicated that transient positive reactions resulted on blood obtained soon after anesthesia. In recent years, with improvements in tech-

nic, serologists have reported that anesthesia does not affect the dependability of reactions. The length of exposure to an anesthetic may be an important factor, a brief exposure might have no effect, while prolonged exposure might. It is therefore well not to depend on a serologic reaction unless repeated examinations several days or a week after anesthesia give the same results.

USE OF CURARE

To the Editor—I cannot find information as to what dilution of curare to use in experimental work as to the effects of the drug on muscle tissue. I should judge the solution used should be quite weak, and I should like to know where to procure it. Are there antidotes for this poison?

FFED E DARGATZ, M D, Kinsley, Kan

ANSWER—Curare is used in the laboratory in a 1 per cent suspension faintly acidified with acetic acid (shake label). When so prepared, an active preparation does not deteriorate rapidly. It has no action on muscle tissue but causes, in effective doses, paralysis by acting on the "receptive substance" at the myoneural junction. Germany was the American source of the crude drug prior to the war. For practicable purposes it is virtually unobtainable at present. Sometimes crude curare may be obtained from old pharmaceutical houses whose shelves contain a few grams—relics of a past age. Physostigmine (eserine) is the antidote for curare poisoning. Since the drug is rather rapidly destroyed in the body, artificial respiration should be practiced if there has occurred a paralysis of the diaphragm.

SALIVATION

To the Editor—What treatment would be most likely to be distinctly beneficial in the case of excessive salivation in the case of a man, aged 67, a cigaret smoker, whose lower teeth have all been removed? He has tried various remedies but particularly Bellafoline, manufactured by the Sandoz Chemical Works of Basel, Switzerland. While this preparation has been slightly beneficial, it is not sufficiently so and there is also some apprehension that the continuous intake of from four to six tablets a day of this preparation may possibly prove injurious in other directions. The salivation is most excessive in the afternoon and evening. Please omit name.

M D, Massachusetts

ANSWER—Salivation may occasionally be due reflexly to some gastro-intestinal condition. Generally, however, it is due to some local condition, as oral infection, a poorly fitting plate, or a peculiar sensitiveness to the rubberized portion or metal of the plate. Excessive smoking may cause salivation. It would be advisable to search for and remove any of these factors and in the absence of these restrict the smoking more or less. Bellafoline owes its virtue to its content of belladonna, which might be preferably prescribed in the form of the tincture or the active principle atropine. Bellafoline has not been accepted by the Council on Pharmacy and Chemistry for inclusion in New and Nonofficial Remedies.

ALBUMINURIA IN PATIENT WITH TUBERCULOSIS

To the Editor—In the routine urine tests of a woman, 33 years of age who has active tuberculosis I have invariably found from 0.5 to 0.75 per cent albumin (Esbach test). Seeded over the entire surface of the albuminous precipitate there is a thin layer of a resin-like brown flaky material. Will you kindly tell me what it is and its meaning?

TECHNICIAN, Pomona, N Y

ANSWER—It is difficult to say what this "flaky resinous" material may be. It would be possible for an excess of phenols and polyphenols to produce dark brown picramic acid in the presence of an alkaline urine. The administration of salicylates, phenyl salicylate, or similar compounds would furnish these substances in abundance, or they may be present as a result of intestinal putrefaction. An excess of bile pigments or uric acid may also be crystallized out of the Esbach's reagent as brown flakes, but the concentration would of necessity have to be greater than is usually found. In any event it is of little consequence compared to the existing albuminuria.

USE OF MORPHINE INTRAVENOUSLY

To the Editor—Are there any contraindications to the administration of morphine sulphate intravenously when the need for a prompt action is present? Please omit name.

M D, New York.

ANSWER—No. For instance, in urgent cases Mahenke (*Zentralbl f Chir* 1925, number 38) advises the intravenous instead of subcutaneous injection of morphine, in a dose of from 0.01 to 0.02 Gm, which produces a prompt effect lasting for about twenty minutes. The only untoward symptom experienced was vertigo, which resulted when the injection was given too fast.

Council on Medical Education and Hospitals

COMING EXAMINATIONS

AMERICAN BOARD FOR OPHTHALMIC EXAMINATIONS Milwaukee, June 12 Sec, Dr William H Wilder, 122 S Michigan Blvd, Chicago

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY The written examination will be given in cities of the United States and Canada where there is a Diplomate who may be empowered to conduct the examination, April 1 The general oral, clinical and pathological examination will be held in Milwaukee, June 13 Sec, Dr Paul Titus, 1015 Highland Bldg, Pittsburgh

AMERICAN BOARD OF OTOLARYNGOLOGY Milwaukee, June 12 Sec, Dr W P Wherry, 1500 Medical Arts Bldg, Omaha

ARIZONA Phoenix, April 4 Sec, Dr B M Berger, 743 E McDowell Rd, Phoenix

ARKANSAS Basic Science Little Rock May 1 Sec, Mr Louis E Gehauer, 1002 Donohuey Bldg, Little Rock Regular Little Rock May 9 Sec, Dr Sam J Allbright, Box 54, Searcy Eclectic Little Rock May 9 Sec, Dr Claude E Laws, 803½ Garrison Ave, Fort Smith Homoeopathic Little Rock, May 9 Sec, Dr Allison A Pringle, Eureka Springs

CALIFORNIA Reciprocity, Los Angeles April 19 Sec, Dr Charles B Pinkham, 420 State Office Bldg, Sacramento

COLORADO Denver, April 4 Sec, Dr Wm Whitridge Williams, 422 State Office Bldg, Denver

HAWAII Honolulu April 10 13 Sec, Dr James A Morgan, 48 Young Bldg, Honolulu

IDaho Boise, April 4 Commissioner of Law Enforcement, Hon Emmitt Pfost, Boise

ILLINOIS Chicago April 11 13 Superintendent of Registration, Mr Paul B Johnson, Springfield

MINNESOTA Basic Science Minneapolis, April 4 5 Sec, Dr J C McKinley, 126 Millard Hall, University of Minnesota, Minneapolis Regular Minneapolis, April 18 20 Sec, Dr E J Engberg, 350 St Peter St, St Paul

MONTANA Helena, April 4 Sec, Dr S A Cooney, 7 W 6th Ave, Helena

NATIONAL BOARD OF MEDICAL EXAMINERS Parts I and II The examinations will be held at centers where there are five or more candidates, May 8 10, June 26 28 and Sept 13 15 Ex Sec, Mr Everett S Elwood, 225 S 15th St, Philadelphia

NEBRASKA Basic Science Omaha, May 2 3 Dir, Mrs Clark Perkins, State House, Lincoln

NEVADA Carson City, May 1 Sec, Dr Edward E Hamer, Carson City

NEW MEXICO Santa Fe April 10 Sec, Dr P G Cornish, Jr, 221 W Central Ave, Albuquerque

RHODE ISLAND Providence, April 6 7 Dir, Dr L A Round, 319 State Office Bldg, Providence

WISCONSIN Reciprocity Milwaukee, April 11 Sec, Dr Robert E Flynn, 401 Main St, La Crosse

District of Columbia Reciprocity Report

Dr W C Fowler, secretary, Commission on Licensure, reports six physicians licensed by reciprocity with other states, Nov 21, 1932. The following colleges were represented:

College	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
George Washington Univ School of Med	(1929), (1930 2)		Maryland
Indiana University School of Medicine	(1929)		Indiana
Long Island College Hospital	(1919)		New York
Medical College of Virginia	(1918)		Virginia

Kansas December Report

Dr C H Ewing, secretary, Kansas State Board of Medical Registration and Examination, reports the written examination held in Topeka, Dec 13-14, 1932. The examination covered 10 subjects and included 100 questions. An average of 75 per cent was required to pass. Six candidates were examined, all of whom passed. Nineteen physicians were licensed by reciprocity with other states and one physician was licensed by endorsement. The following colleges were represented:

College	PASSED	Year Grad	Per Cent
College of Medical Evangelists		(1932)	87 7
Howard University College of Medicine		(1932)	86 8, 87 2
Northwestern University Medical School		(1931)	90 8
University of Illinois College of Medicine		(1932)	89 6
University and Bellevue Hospital Medical College		(1932)	87 5

College	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
University of Arkansas School of Medicine	(1927)		Arkansas
Northwestern University Medical School	(1928)		Missouri
Rush Medical College	(1928)		Colorado
State Univ of Iowa Coll of Med	(1927) (1929) (1931 2)		Iowa
University of Louisville School of Medicine	(1928)		Kentucky
American Medical College, Missouri	(1899)		Missouri
Creighton University School of Medicine	(1926), (1928)		Nebraska
Medical College of Ohio	(1897)		Ohio
University of Cincinnati College of Medicine	(1929)		Ohio
University of Oklahoma School of Medicine	(1930)		Oklahoma
University of Tennessee College of Medicine	(1929), (1931)		Tennessee

Baylor University College of Medicine
University of Texas School of Medicine
University of Toronto Faculty of Medicine

College
Cornell University Medical College

LICENSED BY ENDORSEMENT

(1924) Nebraska
(1932) Texas
(1919) N Dakota
Year Endorsement
Grad of
(1931) N B M Ex.

Alabama Reciprocity Report

Dr J N Baker, secretary, Alabama State Board of Medical Examiners, reports eleven physicians licensed by reciprocity with other states from Sept. 1 to Dec. 10, 1932. The following colleges were represented

College	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
Tulane University of Louisiana School of Medicine (1930, 2) Louisiana		(1925)	Minnesota,
University of Oklahoma School of Medicine		(1931)	Oklahoma
Medical College of the State of South Carolina		(1927)	S Carolina
University of Tennessee College of Med. (1929)		(1931) 3	Tennessee
University of Virginia Department of Med. (1907), (1930)			Virginia

Book Notices

The Scientific Basis of Evolution By Thomas Hunt Morgan Ph.D D.Sc. LL.D. Professor of Biology California Institute of Technology Cloth Price \$3.50 Pp 286 with 42 illustrations New York W W Norton & Company Inc 1932

This volume consists of twelve chapters, each of which is the substance of a lecture, somewhat expanded but essentially as delivered. These lectures, the Messenger Lectures, were delivered at Cornell University in the spring of 1931. The author, a leading geneticist, makes it his prime object to point out the contrast between truly scientific theories of evolution and various speculative theories. He asserts that "evolution is not so much a study of the history of the species as it is an investigation of what is taking place at the present time." He thus limits the truly scientific study of evolution to the field known as genetics. In this field alone, he asserts, is it possible to apply the really scientific methods of experiment and accurate analysis that are characteristic of the physical sciences. The facts and theories of genetics are presented simply, ably and attractively. No one else has done this so well. Some, however, still believe that paleontology, embryology and comparative anatomy may afford some truly scientific basis for the study of evolution and are not to be put aside as inferior disciplines. Morgan pins his faith almost exclusively to the gene theory of evolution, of which he is the originator. He comes close to discarding natural selection, utterly puts aside the Lamarckian theory, explains away orthogenesis theories, and shows no sympathy at all with vitalistic views, considering vitalistic such theories as emergent evolution, holism and organicism. He is the high priest of a large and prominent group of worshippers at the shrine of the gene theory. According to them, the genes are all powerful. In one place, Morgan makes the extreme hereditarian statement that "there can be little doubt that down to the minutest details our physical characters are due to inheritance." Throughout the book the author defends the mechanistic interpretation of life and ridicules metaphysical and vitalistic interpretations of life and evolution. The book was a Scientific Book Club selection and well deserves that distinction, for it is one of the most scientific books about evolution that has yet appeared.

Organic Chemistry for Medical Students By George Barger M.A. D.Sc. F.R.S. Professor of Chemistry in Relation to Medicine in the University of Edinburgh. Cloth Price 12/6 Pp 249 with illustrations London & Edinburgh Gurney & Jackson 1932.

The author's preface clearly states that the purpose of this admirable summary of facts is to meet the special requirements of the medical student as the ever increasing burden of the curriculum makes condensation of the essentials highly desirable. This purpose has been fulfilled. The work is highly condensed is full of important facts, and presents the material in simple language. There is almost no discussion of chemical theory or of the electrical mechanisms of chemical reactions. Because of the absence of any discussion of theory the book is particularly applicable as a textbook for teaching, when the

instructor can supply this deficiency. As such a textbook, the work can be employed most profitably. No discussion has been made of colloids, of the relationships of changes in hydrogen ion concentration, and of dyes having medical significance. In view of the modern trend in biochemical investigations, these omissions are unfortunate. The chemistry of the purines and of thyroxine is splendidly clear, the chemical relationships of salicylic acid and the salicylates are presented with admirable thoroughness. The book should prove excellent for the medical student desiring a condensed collection of essential and vital facts concerning organic chemistry as it relates to medicine, it is not a book of reference and does not pose as such. The type is clear and large, and structural formulas are clearly indicated. The index is adequate.

The Youngest of the Family His Care and Training By Joseph Garland M.D. Physician to Children's Medical Department Massachusetts General Hospital. Cloth Price \$2 Pp 196 with 11 illustrations Cambridge Harvard University Press 1932

This is one of the better books on the care of the baby prepared to aid mothers in caring for the infant. It is clearly and simply written and contains a great deal of material that the mother will find most useful. The book would be greatly improved by the inclusion of more illustrations and by the omission of several prescriptions that have been included. The principles outlined in this book will, of course, aid the mother in keeping her child strong and healthy. Unfortunately, the many mothers who need the type of advice contained in a book of this sort are unable to avail themselves of this material either because they are unable to read and understand it or for economic reasons.

Diseases of the Nose Throat and Ear for Practitioners and Students Edited by A Logan Turner M.D. LL.D. F.R.C.S.E. Consulting Surgeon Ear and Throat Department Royal Infirmary Edinburgh. With the collaboration of J S Fraser M.B. F.R.C.S.E. Surgeon to the Ear and Throat Department Royal Infirmary Edinburgh W T Gardner M.C. M.B. F.R.C.S.E. Aural Surgeon Eye Ear and Throat Infirmary Edinburgh J D Lithgow M.B. F.R.C.S.E. Surgeon to the Ear and Throat Department Royal Infirmary Edinburgh G Ewart Martin M.B. F.R.C.S.E. Assistant Surgeon Ear and Throat Department Royal Infirmary Edinburgh and Douglas Guthrie M.D. F.R.C.S.E. Surgeon to the Ear and Throat Department Royal Hospital for Sick Children Edinburgh. Third edition. Cloth Price \$6 Pp 465 with 269 illustrations Baltimore William Wood & Company 1932

All that has been said about the previous editions of this deservedly popular manual is applicable to this one. The clarity, conciseness, excellence of illustration and authority of statement make this textbook one of the best of its kind in the English language.

The Relative Value of Radiotherapy in the Treatment of Cancers of the Upper Air Passages By W Douglas Harmer M.A. M.B. M.C. University of London. Semon Lecture. Delivered at the Royal Society of Medicine on November 5 1931. Cloth Price 6/- Pp 85 with 15 illustrations London John Murray 1932

This booklet opens with a discussion of the general principles underlying radiation therapy. The author calls attention to the marked difference in results reported by various surgeons in the treatment of early, intrinsic cancer of the larynx by laryngofissure. The percentage of recurrences varies between 12 and 35. For carcinomas absolutely localized to one vocal cord or band, Harmer uses a modification of Ledoux's operation (fenestration) and applies radium through a window cut in the cartilage. When the growth has crossed the midline the radium needles must be placed bilaterally. Tracheotomy is not performed when the opposite vocal cord is movable and the glottis is adequate. In case of doubt, the front of the trachea is exposed and left ready for tracheotomy if necessary. This operation was performed on forty-seven patients with only one death. Eight cases suitable for thyrotomy were treated by the fenestration method with radium. Seven of the patients are living and free of disease after from two to six years. Twenty patients suffering from a more advanced stage of the disease were treated by this method with the following results. One patient remained free of disease for six years, a second has been well five years, four have been well for two years, and one is well less than one year after the operation. Harmer concludes that irradiation is the best treatment for all cases of intrinsic cancer of the larynx, and that the reported unsatisfactory results of irradiation are due to faulty technic, inadequate dosage and filtra-

tion, and underestimation of the extent of the disease. In the author's hands the percentage of cures in operable cases appears to be at least as good by radium as by surgery. For the borderline group, Harmer advises that radium always be tried before laryngectomy. The voice results after radium treatment are superior to those obtained by surgery. For carcinoma of the antrum the author gives a preliminary treatment with x-rays and one week later he performs a biopsy. The tumor is exposed by removing the hard palate with the alveolar process. The growth is removed by diathermy, and radium is inserted in the cavity usually by means of a mold. Of fifty-three patients treated by this method only ten are living, but many of the patients suffered from advanced stages of the disease. The results of irradiation in the treatment of carcinomas of the nasopharynx and tonsil, especially by means of large radium bombs (telerradium) and Coutard's method with x-rays are discussed. Harmer believes that there is a great future in the radiotherapy of malignant tumors affecting the upper air passages but that radium should be used only by specialists, preferably in special clinics. He concludes that palliative relief can be afforded by irradiation to a large percentage of patients suffering from advanced cancer with little danger and that it is safer to treat the more virulent types of cancer by combined irradiation and surgery than by surgery alone.

Cancer Then and Now New York City Cancer Committee American Society for the Control of Cancer Paper Pp 80, with illustrations New York Chemical Foundation Inc 1932

Education of the public remains one of the important phases of cancer control. The transmission of the necessary medical information to the layman presents peculiar difficulties. In this pictorial pamphlet the New York City Cancer Committee has succeeded admirably in translating highly technical material into everyday language in an interesting and attractive manner. The booklet contains much useful information. In a series of brief but direct communications, authors whose names are well known have commented on causation, early diagnosis, surgery, x-rays and radium in cancer. These statements are at once highly practical and scientifically accurate. Particularly attractive and valuable are the historical aspects dealing with the development of surgery, x-rays, radium, nursing, social service, and cancer hospitals. The illustrations constitute an historical atlas and it is a pity that they could not have been reproduced to better advantage. This publication is an example of what can be accomplished in cancer education without arousing undue fear of the disease. Although it was compiled primarily for the layman, the physician will find in these pages much information of historical interest and value.

Chirurgie du sympathique pelvien en gynécologie Par Gaston Cotte professeur agrégé à la Faculté de médecine de Lyon Paper Price 45 francs Pp 318 with 38 illustrations Paris Masson & Cie 1932

Almost the entire book is devoted to a discussion of the indications and technic of surgery of the sympathetic pelvic nerves, particularly resection of the presacral nerve. In the first three chapters the author discusses the history of this type of surgery and the anatomy and physiology of the pelvic sympathetic nervous system. Then follows the section on technic, which includes descriptions and illustrations of intervention on the periarterial plexus, the visceral plexus, the lumbosacral sympathetic chain and the communicating branches. Among the usual indications for this form of therapy the author includes pelvic pain associated with inoperable carcinoma of the cervix, dysmenorrhea, dyspareunia, vaginismus, painful cystitis, functional disturbances of the bladder, persistent leukorrhea, nymphomania, frigidity, pruritus vulvae, amenorrhea and trophic disturbances of the female genitalia. Among the rare indications he includes uterine pains during pregnancy, tuberculous peritonitis and salpingitis, and other ailments. The author maintains that he has obtained excellent results in the foregoing disturbances by resecting the sympathetic pelvic nerves. He has had an extensive experience, for since 1924, when he performed the first resection of the presacral nerve, up to July 1931, he performed 125 of these operations for menstrual irregularities alone. The book is well written and beautifully illustrated and is an excellent guide for those who care to undertake these operations. The

author's list of indications, however, is far too generous, for many of the conditions cited as indications can be remedied without surgical intervention. After all, every laparotomy, no matter how simple, entails some risk and should be avoided if there is a less hazardous method of therapy.

Pneumolyse Intrapleurale L'opération de Jacobæus et la thoracocautère d'après Maurer dans le pneumothorax artificiel Par le Dr Louis Sayé professeur à la Faculté de médecine de Barcelone Preface du Pr Léon Bernard Paper Price 40 francs Pp 239, with 119 illustrations Paris Masson & Cie 1932

This lucid, well illustrated and authoritative monograph is one of a series entitled the "Bibliography of Phthisiology" published under the direction of Leon Bernard. In the preface Bernard writes that radiology, bacteriology and serology, experimental and social medicine, surgery and chemotherapy have, so to speak, turned upside down the perspective of phthisiology, making of it a veritable specialty, and these monographs are designed to trace its development and bring the knowledge of its various aspects to the present time. In this volume on intrapleural pneumolysis, Sayé sketches the history of endoscopy as applied to the abdomen and to the thorax. In a series of tables on the published results of artificial pneumothorax, he shows that incomplete collapse due to pleural adhesions is its chief limitation. He deals systematically with the pathologic anatomy of pleural adhesions and the open operation for their severance, with thoracoscopy and thoracocautery, with the roentgen recognition of types of adhesions, and with the results following the use of the original Jacobæus operation and the operation as modified by Maurer. He gives in detail his results in 102 operations with the Jacobæus-Unverricht thoracoscope and includes eighteen illustrative case reports. A chapter follows on the use of gold salts in conjunction with the use of artificial pneumothorax and a final one on the thoracoscopic severance of adhesions. A bibliography is appended. This volume is recommended to all who are interested in the subject of intrapleural pneumolysis.

The 1932 Year Book of Radiology Diagnosis Edited by Charles A. Waters M.D. Associate in Roentgenology Johns Hopkins University Therapeutics Edited by Ira I. Kaplan B.Sc. M.D. Director Division of Cancer Department of Hospitals City of New York Cloth Price \$6 Pp 750 with 498 illustrations Chicago Year Book Publishers Inc 1932

For the busy physician who must make the most of leisure hours, a year book of radiologic progress is a welcome addition to the periodical literature on medical advances. This collective review of the latest literature covers roentgen diagnosis, roentgen therapy and radium therapy. An adequate review of such rich material, already presented in condensed form, is out of the question, but the opportunity may be utilized to commend in highest terms the project and the satisfactory manner in which it has been carried out. In radiologic diagnosis the important advance has occurred in ventriculography, encephalography, hepatosplenography, roentgen pelvimetry, and studies of the heart and aorta. In the alimentary tract, stress is laid on the "relief" studies by coating the mucosal surfaces with a small quantity of opaque solution, sometimes combined with air insufflation. In radiation therapy the most important communications relate to the need of supervoltage x-ray apparatus and radium packs, the necessity for which is by no means agreed on. Neither massive radium packs nor million-volt x-ray apparatus are available in any but endowed institutions. In fact, the English have found the 4 Gm radium bomb of insufficient value, the Radium Commission of the British Empire Cancer Committee stating that "the use of the bomb in its present form is not only uneconomic but unwarranted." The results of the large radium pack therapy, now being tried in several large clinics both in the United States and abroad, are being awaited with interest and some impatience. Standardization of a unit of dosage for roentgen therapy is an important accomplishment of the last year or two. The r (equivalent to about 25 R as established in France by Solomon) is now internationally accepted as the unit of x-ray measurement. The massive dose of roentgen therapy delivered in daily fractions so that the treatment is completed within two or two and a half weeks, as advocated by Coutard, is now being accepted and used almost universally as the method of choice in cancer of the larynx, upper air passages and nasopharynx. Preoperative as well as

postoperative irradiation in breast cancer seems to be the logical recommendation in the light of recently published results. As yet, no curative effect in carcinoma of the digestive tract has resulted from irradiation either by radium or by x-rays

Medicolegal

Workmen's Compensation Act Traumatic Neurosis —

In the course of his employment, an employee fell, striking the lower part of his abdomen on a hand truck. He was laid up for four or five weeks, during which time he received compensation. Then he worked for about ten months, but he quit because his condition was growing worse. A herniotomy was performed, but apparently he received no relief. Although an application for further compensation was rejected, he did not appeal from the decision. About eighteen months later, however, he filed a new claim, alleging that since the prior hearing he had developed "a post traumatic neurosis" as a result of the original injury and was totally and permanently disabled. He was awarded compensation and his employer appealed to the Supreme Court of Nebraska. His employer first contended that the claimant was barred from recovering compensation, by the former proceedings. But, said the Supreme Court, two physicians testified that the claimant's condition might be latent and is of a progressive nature, and that it was not discovered until shortly before the present action was instituted, and under the Nebraska workmen's compensation act, when an injury is latent is of a progressive nature and culminates in compensable disability, a claim may be filed within a year after its culmination. The condition for which compensation is now asked, "a post traumatic neurosis," was not involved in the former proceedings. The employer's contention that the claimant's present condition was not caused by the industrial accident, according to the Supreme Court, was disproved by the evidence. One physician testified that he had seen the claimant about fifty or sixty times since the injury and that his present condition was the direct result of that injury. Another physician testified that there was a definite proximate relation between the injury and the employee's present condition and that there were no intervening factors to account for that condition. No physician testified to the contrary. Accordingly, compensation was awarded the employee.—*Marler v Grainger Bros (Neb)*, 243 N W 622

Testimony of Medical Expert as to Probable Consequences of Injury—The plaintiff was struck by a truck and suffered a compound depressed fracture of the skull. He was taken to a hospital, and a piece of skull about the size of a silver quarter, which was pressing on his brain, was removed. Later he sued the defendant, the owner of the truck for damages. A neurologist, who had not attended the plaintiff but who had examined him three times prior to the trial, testified over the defendant's objections that the plaintiff had sustained a 50 per cent mental impairment and that epilepsy would probably follow. The testimony with respect to the present mental condition of the plaintiff, the defendant contended, should have been excluded, since it was predicated partly on "the history of the case," which included hearsay statements by the plaintiff and others, as well as the physical evidence of the injury. But, said the Supreme Court of Appeals of West Virginia the neurologist's opinion was based on the physical evidence as disclosed by the hospital records (supported by the testimony of the operating surgeon), x-ray examinations by himself his wide experience as a neurologist and the fact testified to by other witnesses, that the plaintiff was mentally normal before the injury. A medical expert properly qualified may testify as to the probable future consequences of an injury provided the consequences anticipated are such as in the ordinary course of events may reasonably be expected to happen and are not merely speculative or possible. The evidence of lay witnesses on the mental condition of the plaintiff was admissible. Ordinary witnesses when qualified by adequate observation may testify as to another's mental capacity.—*Graces v Katskin* (11 1 a) 164 S E 796

Society Proceedings

COMING MEETINGS

- Alabama Medical Association of the State of, Montgomery, April 18 21
Dr D L Cannon 519 Dexter Avenue Montgomery, Secretary
- American Association for the Study of Goster Memphis, Tenn, May 15 17
Dr J R Yung 670 Cherry Street Terre Haute, Ind., Secretary
- American Association for Thoracic Surgery, Washington, D C, May 9 11
Dr Duff S Allen 3720 Washington Boulevard St Louis Secretary
- American Association of Anatomists Cincinnati, April 13 15 Dr George W Corner University of Rochester School of Medicine, Rochester N Y, Secretary
- American Association of Genito-Urinary Surgeons Washington D C, May 8 10 Dr Henry L Sanfo d, 1621 Euclid Avenue, Cleveland Secretary
- American Association of Pathologists and Bacteriologists Washington, D C May 23 Dr Howard T Karsner 2085 Adelbert Road Cleveland Secretary
- American Bronchoscopic Society Washington D C May 10 Dr Edwin McGinnis 104 South Michigan Boulevard Chicago, Secretary
- American Gastro-Enterological Association Washington, D C May 9 10
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- American Neurological Association Washington, D C May 9 11 Dr Henry A Riley 117 East 72d Street New York, Secretary
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- American Society for Experimental Pathology Cincinnati April 10 12 Dr C Philip Miller Jr, University of Chicago Department of Medicine Chicago Secretary
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- Maryland Medical and Chirurgical Faculty of Baltimore April 25 26 Dr Walter Dent Wise 1211 Cathedral Street Baltimore Secretary
- Mississippi State Medical Association Jackson May 9 11 Dr T M Dye Clarksdale Secretary
- Missouri State Medical Association Kansas City May 1-4 Dr E J Goodwin 634 North Grand Boulevard St. Louis Secretary
- New Hampshire Medical Society Manchester May 16 17 Dr D E Sullivan 7 North State Street Concord Secretary
- New York Medical Society of the State of New York April 3 5 Dr Daniel S Dougherty 2 East 103d Street New York, Secretary
- North Carolina Medical Society of the State of Raleigh April 17 19 Dr L B McBrayer Southern Pines Secretary
- Ohio State Medical Association Akron May 23 Mr Don K Martin 131 East State Street Columbus Executive Secretary
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Titles marked with an asterisk (*) are abstracted below.

American Journal of Surgery, New York

18 403 600 (Dec.) 1932

- Diagnosis and Roentgen Ray Treatment of Malignant Disease of Bone S. Moore, St. Louis—p. 403
 Characteristics of Adequate Electrosurgical Current A. J. McLean, Portland, Ore.—p. 417
 Skeletal Traction and Pressure in Treatment of Fractures E. A. Nixon, Seattle—p. 442
 Multiple Ossification Centers of Patella P. W. Greeley, Winnetka, Ill.—p. 456
 Surgery of Sympathetic Nervous System W. D. Abbott, Des Moines, Iowa—p. 460
 Rectal Administration of Tribrom Ethanol: Its Use Abroad E. F. Goldschmidt and S. C. Harvey, New Haven, Conn.—p. 467
 Unusually Large Ureter Stones: Report of Two Cases H. L. Kretschmer, Chicago—p. 478
 *Prevention of Recurrence of Urinary Calculi A. Randall, Philadelphia—p. 482
 *Present Status of Surgical Treatment in Pulmonary Tuberculosis P. N. Coryllos, New York—p. 494
 Fracture of Sesamoid Bones: Report of Two Cases J. Sagel, Minneapolis—p. 507
 Wright Method of Treating Leg Ulcers H. R. Shands, Jackson, Miss.—p. 510
 Difficult Hernias: Surgical Treatment, with Especial Reference to Modified Method of Obtaining Living Fascial Sutures J. E. Fuld, New York—p. 514
 Spivack's Method of Gastrostomy, with Brief Critical Review of Some of the Previous Methods and Report of Three Cases N. H. Lowry and S. Sorenson, Chicago—p. 521
 Vaginal Sterilization: Indications and Operative Technique A. E. Kanter and A. H. Klawans, Chicago—p. 529
 Rupture of Corpus Luteum, with Intra Abdominal Hemorrhage Subsequent to Acute Appendicitis R. B. McKnight, Charlotte, N. C.—p. 538
 Simple Method of Suprapubic Cystostomy N. Belt, Washington, D. C.—p. 540
 Comfortable and Sanitary Colostomy Bag E. R. Arn, Dayton, Ohio—p. 541

Urinary Calculi—According to Randall, phosphoric acid 1 per cent has a pH acidity of approximately 1.6. Its bactericidal value is based on this. Phosphoric acid 1 per cent is practically isotonic and is slightly less acid than the gastric acidity after a test meal. In experimental dogs, renal pelvis injected with 1, 3 and 5 per cent phosphoric acid fail to show any destruction of the pelvic lining epithelium or damage to the renal papillae. Eleven patients in whom renal pelvic lavage with 1 and 2 per cent solution of phosphoric acid has been used, through a postoperative drainage tube, through a ureteral catheter, or through both, have not experienced discomfort or excessive renal pain. The bladder is less tolerant than the ureter or kidney pelvis, and the urethra is the least tolerant of all. The renal pelvic urine in recorded cases has been restudied and with one exception has been found to retain a normal acidity following this postoperative lavage. This step in prophylactic treatment in cases of recurrent renal calculi has a rationale in both correlated conditions in the lower urinary tract and in bacteriologic observations. The author concludes that, by bladder lavage with phosphoric acid postoperatively, alkalinization and phosphatic encrustations can be prevented. The treatment of staphylococcal cystitis, encrusting cystitis, leukoplakia and allied conditions by this means is indicated. The prevention of recurrent renal calculi of the phosphatic variety is being attempted with every indication of success. The possible dissolution of small phosphatic calculi, or fragments left at operation, may be expected by the recognized action of such strengths of phosphoric acid in vitro, and the tolerance of such topical applications in vivo. As a postoperative prophylactic measure against infection with the alkaliphilic organisms, it is herein proved safe and efficacious in kidney surgery and should therefore aid in the prevention of recurrent renal calculi of the phosphatic variety.

Pulmonary Tuberculosis—Coryllos states that collapse therapy is indicated only in the caseous form of tuberculosis, and only after the period of consolidation is over when the necrotic material has been sloughed out. In the extremely acute period of tuberculosis any collapse therapy is useless, because of the impossibility of collapsing a consolidated lung and because exudative tuberculosis generally heals by itself, it is dangerous because of the frequency of the occurrence of spontaneous pneumothorax. Pneumothorax if it does not produce selective collapse is useless and harmful and should be replaced by more efficient collapse therapy. Phrenicectomy is unable by itself to produce a definite cure of tuberculous cavities. It is useless in the other forms of tuberculosis. Associated with other collapse methods, it may be of real help. Intrapleural pneumolysis by the method of Jacobæus, in well selected cases and skilfully performed, can give good results. Extrapleural apicolysis with or without compression of the apex by foreign bodies is a method that is especially indicated in bilateral cases. Thoracoplasty is the most efficient method for permanent and definite collapse of the lung. It is, however, a major operation, requiring a faultless technic, a careful selection of cases, adequate preoperative preparation and painstaking previous estimation of the resistance of the patient, ether anesthesia is harmless but should be administered by such methods as to allow a complete separation of upper and lower respiratory tract and permit the suction of the bronchial exudate. Intratracheal anesthesia fulfils these requirements. The most important postoperative complications are cardiopulmonary complications generally following bronchial or bronchiolar obstruction and the resulting atelectasis and anoxemia. The treatment of pleural complications varies according to the nature of the exudate, it should be conservative in aseptic tuberculous exudates. Thoracoplasty is the treatment of choice. Injection of aromatized oil or dyes is to be tried in moderately infected empyemas, drainage should be installed in mixed infections and more especially in anaerobic empyemas later followed by thoracoplasty. Thoracic surgery in tuberculosis requires the close cooperation of the thoracic surgeon with the phthisiologist, not only before but also after operations, tuberculous patients should no more be considered as medical or as surgical patients but as medicosurgical cases requiring continuous medicosurgical supervision, study and treatment. Pulmonary tuberculosis can be successfully treated "by mechanical means," as Carson prophesied. This part of the problem is solved. What remains to be done is to perfect one's technic and to devise some means by which mortality will be decreased and operative indications enlarged.

Archives of Surgery, Chicago

25 1011 1196 (Dec.) 1932

- Breaking Strength of Healing Fractured Fibulae of Rats V. Observations on Low Calcium Diet R. M. McKeown, S. C. Harvey and R. W. Lumsden, New Haven, Conn.—p. 1011
 *Effect of Viosterol on Periosteum in Experimental Fractures R. C. Grauer, Pittsburgh—p. 1035
 Duodenal Tuberculosis: Review of Literature and Report of Case of Hyperplastic Tuberculosis of Duodenum W. B. Matthews, P. A. Delaney and L. R. Dragstedt, Chicago—p. 1055
 *Cystic Nodules of Terminal Finger Joints I. W. Nachlas, Baltimore—p. 1067
 Experimental Production of Inflammatory and Suppurative Conditions of Lung M. Ascoli and A. Bonadies, Rome, Italy—p. 1074
 Etiology of Gallstones II. Analysis of Duct Bile from Diseased Livers E. Andrews, L. Hrdina and L. E. Dostal, Chicago—p. 1081
 Sacrococcygeal Teratomas G. H. Hansmann and C. J. Berne, Iowa City—p. 1090
 Acute Intestinal Obstruction I. General Considerations M. A. McIver, Cooperstown, N. Y.—p. 1098
 *Id. II. Acute Mechanical Obstructions Exclusive of Those Due to Neoplasms and Strangulated External Hernias M. A. McIver, Cooperstown, N. Y.—p. 1106
 Id. III. Obstruction Due to Neoplasms and Strangulated External Hernias M. A. McIver, Cooperstown, N. Y.—p. 1125
 *Chronic Endemic Ergotism: Its Relation to Trombo-angitis Obliterans J. Kaunitz, New York—p. 1135
 Tuberculosis of Meckel's Diverticulum P. Michael, Oakland, Calif.—p. 1152
 Circulation of Human Thyroid J. D. Stewart, Portland, Ore.—p. 1157
 Review of Urologic Surgery A. J. Scholl, Los Angeles, E. S. Judd, Rochester, Minn., L. D. Keyser, Roanoke, Va., Jean Verbrugge, Antwerp, Belgium, A. A. Kutzmann, Los Angeles, A. B. Hepler, Seattle, and R. Gutierrez, New York—p. 1166

Effect of Viosterol in Experimental Fractures—According to Grauer's experiments on guinea-pigs, viosterol, in therapeutic doses, causes stimulation of the osteogenic layer

of the periosteum in experimental fractures Osteogenic differentiation is enhanced through the agency of viosterol (vitamin D) Overdosage produces stimulation of the fibrous layer of the periosteum, through decalcification of bone, and causes retardation in repair Osteitis fibrosa is simulated by overdoses of viosterol in guinea-pigs Studies of the serum calcium and phosphorus in the case of high doses invalidate the calcium phosphorus product as a means to prognosticate non-union The author advances a theory as to the mode of action of viosterol in experimental fractures whereby the osteogenic layer is stimulated to differentiation and proliferation by small doses of viosterol following the initial impetus toward repair produced by the fracture

Cystic Nodules of Finger Joints—Nachlas has observed soft nodules on the terminal joints of the fingers that differ radically from the tophi in gout. The incidence of these nodules and their clinical course indicate that they are a pre-ossaceous stage of Heberden's nodes Studies of the contents of the nodules showed a gelatinous material high in calcium content The absence of uric acid and urates dissociates this condition from gout. In treating the nodules the discrete mass is frozen by an ethyl chloride spray A small transverse incision is made, and while the tissues are still hard pressure is applied on each side of the incision with the back of the knife and a clamp The contents of the sac pop out as a clear bead The area is wiped off and a sterile dry dressing is applied After a few days, the dressing is removed and the wound is found closed with little evidence of scar and without the original swelling When incision is not feasible, baking gives relief from pain and slight reduction in size.

Acute Intestinal Obstruction—McIver presents data on a third ten-year series of 156 cases (for 1918 to 1927) of acute intestinal obstruction of mechanical origin, excluding obstructions due to neoplasms or to strangulated external hernias The mortality in this series was 44 per cent, contrasting with 41 per cent in the years from 1908 to 1917 and 60 per cent in the period from 1898 to 1907 A detailed analysis of the mortality in the different types of obstruction is presented There are three salient factors that affect the mortality the lapse of time between the onset of the obstruction and the operation, the degree of interference with the circulation of the intestine and the age of the patient Pain and vomiting were recorded in all the cases, and distention was usually present Visible peristalsis was recorded in twenty-two instances (occurring chiefly in the early and the late postoperative obstructions), abdominal tenderness in sixty-one instances and muscle spasm in thirty-seven Elevation of the white count is suggestive of strangulation and the need of immediate operation A local anesthetic should be used in cases coming late to operation The figures showed a low mortality for ether anesthesia as contrasted with local, but this was interpreted on the basis of the fact that operation in the more desperate cases was done under local anesthesia Dehydration treatment by the administration of adequate volumes of physiologic solution of sodium chloride is extremely important During the last four years of the author's series he paid special attention to this phase of treatment, and although it was felt to be a life saving measure in certain cases, no lowering of the mortality rate was found as contrasted with that of other years He offers the explanation that while dehydration is usually an important factor in obstructions at any level, it is most striking in simple high obstructions Such cases are relatively infrequent. The obstructions are usually low and are often complicated by interference with the circulation of the intestine, a more important factor in determining the outcome than is dehydration

Chronic Endemic Ergotism—According to Kauntz, the etiology, symptomatology and pathology of ergotism are to a great extent simulated by thrombo-angitis obliterans Both ergotism and thrombo-angitis obliterans are practically limited to young and to middle aged male persons The Jews, who regard their ailments seriously, are more apt to seek medical advice, which explains why more cases of thrombo-angitis obliterans have been reported in this people The diet in both thrombo-angitis obliterans and ergotism includes to a great extent rye bread There is ample proof that this bread is frequently contaminated with ergot occasionally in toxic doses Greater precautions are advisable in cleaning and aging all the

grains susceptible to ergot infection, principally rye and wheat, particularly durum wheat The author produced pathologic effects suggestive of various vasomotor and trophic diseases by experimental ergotism in cocks Fresh and organized thrombi and organization of the thickened tunica intima were obtained In one of his more recent experiments, vessels were obtained with obliterating canalized thrombi, simulating thrombo-angitis obliterans Since small doses of ergot may be capable of aggravating the condition of a vessel already diseased, it might be found advisable for patients with thrombo-angitis obliterans to forego rye bread that has not been proved to be free from ergot Histamine and tyramine, commonly found in the human body and in ergot, should be carefully investigated as to their prolonged effect on the vessels, as they may be responsible for some of the vascular conditions under consideration

Journal of Bacteriology, Baltimore

241:423-498 (Dec.) 1932

- Lethal Effect of Alternating Current on Yeast Cells R. L. Tracy Jr.—p. 423
*Influence of Inorganic Salts on Multiplication of *Gonococcus*. C. P. Miller, Jr. A. B. Hastings and Ruth Castles Chicago—p. 439
Note on Reaction Changes During Sterilization of Vegetable Extract Culture Mediums L. S. McClung, Austin Texas—p. 457
Pasteurization of Milk Artificially Infected with Two Strains of *Brucella* Suis. S. E. Park R. Graham, M. J. Prucha and J. M. Brannon—p. 461
Types of Bacteria on Blood and Chocolate Agar and Immediate Cause of These Types E. Leifson—p. 473
Production of Hydroxylamine by Reduction of Nitrates and Nitrites by Various Pure Cultures of Bacteria. G. A. Lindsey and C. M. Rhines—p. 489

Multiplication of *Gonococcus*—Miller and his associates made a study of the role of certain inorganic salts in the multiplication of the gonococcus on artificial mediums Sodium and potassium were found to be interchangeable and nontoxic at high concentration Calcium and magnesium were unessential but inhibited growth at concentrations greater than 30 millimols per liter Citrate and oxalate nullified the toxic action of calcium but not of magnesium Growth occurred between pH 6.0 and 8.2, with optimum growth at pH 7.0 to 7.6 Unless the mediums were well buffered either with bicarbonate or phosphate, growth did not occur Chloride was replaceable by nitrate or sulphate without impairing growth Below osmolar salt concentrations of 150 and above 550 millimols per liter, growth was inhibited

Journal of Industrial Hygiene, Boston

14:345-379 (Dec.) 1932

- *Pneumonia Problem in Steel Industry D. K. Brundage and J. J. Bloomfield—p. 345
Alternating Current Precipitators for Sanitary Air Analysis I. Inexpensive Precipitator Unit II. Acid Formation in Electric Precipitators P. Drinker, W. G. Hazard and T. Ishikawa Boston—p. 364

Pneumonia in Steel Industry—Brundage and Bloomfield state that reports from industrial sick benefit associations to the United States Public Health Service have consistently shown a higher incidence of pneumonia among employees of the iron and steel industry than in other industries as a whole. Occupational mortality statistics for England and Wales reveal an excessive death rate from pneumonia in certain occupations of Britain's steel industry Factors apart from working conditions, such as seasonal variation in the frequency of pneumonia, influenza epidemics, economic status of the workers, their age, nationality, extent of addiction to alcoholic stimulants, and prevalence of the disease in the community selected for study of the pneumonia problem were analyzed and found of insufficient influence to account for the high rate among the steel workers A study of working conditions in a large steel plant with especial reference to the occurrence of pneumonia showed that the disease was associated with exposure to heat hazards when subjection to wide changes in temperature was involved, also with outdoor exposure to storms and other inclement weather conditions, and with indoor exposure to humid, drafty conditions and wet clothing Sudden cooling or chilling of the body was indicated as an important predisposing factor Among the remedial measures suggested are 1. Mechanical devices to reduce the effective temperature in occupations involving exposure to radiant energy 2. Extension of the mechanization of processes involving heat hazards

These will doubtless tend to reduce the frequency and intensity of the workers' exposure 3 Adequate provision for change houses for employees exposed to the conditions that appear to predispose to respiratory diseases, and compulsory use of such houses Men perspiring freely after heavy work in front of the open furnaces were observed changing clothes while standing in a direct draft, others went home without changing their clothes even though they had become wet from perspiration 4 Shelters in stormy weather for those who work outdoors 5 Reduction of hours of work 6 Furtherance of health education of employees as to the danger of sudden chilling due to comparative inactivity following exposure to high temperatures, and the importance of suitable protective clothing 7 A visiting nursing service to instruct the patient and help arrange for medical and nursing care while pneumonia is still in its incipience

Journal of Urology, Baltimore

28 639 740 (Dec) 1932

- Innervation of Ureter, with Respect to Denervation L R Wharton, Baltimore —p 639
 *Neurogenic Vesical Dysfunction in Children C K Smith and L P Engel Kansas City, Mo —p 675
 Valveless Cystometer Delivering an Uninterrupted Stream L M McKinlay, Grand Rapids, Mich —p 727
 Air Valve for Direct Vision Cystoscope R E Tyvand, Rochester, Minn —p 731

Neurogenic Vesical Dysfunction in Children—Smith and Engel consider the factors involved in cases of frank retention and incontinence, founded on a study of cases Their experience and a digest of the literature indicate that responsibility for either incontinence or retention can be placed in most instances on faulty innervation from the parasympathetics, which is generally associated with osseous fusional defects of the lower part of the spine, in which the nerve roots have become involved in associated fibrous tissue formation during the development of the individual In cases of retention, in this situation, degeneration of the parasympathetics apparently leaves the brakelike innervation from the sympathetics in control of the sphincters In cases of incontinence, which in their series comprised cases of primary incontinence and other cases, which, in the earlier stages, were undoubtedly cases of retention, they conclude that inherent muscle tonus of the sphincters, which is dependent on parasympathetic innervation, was absent from the first in the more aggravated cases and had been completely lost during the degenerative process wherein a primary retention had passed over into an incontinence Management is regarded as essentially surgical In cases of incontinence, reinforcement of sphincteric control should be attempted by muscle transplantation into the perineum encircling the urethra or by plastic tightening of the vesical sphincteric outlet In cases of retention, resection of the sympathetic chain releases the brakelike action on the sphincter, and good emptying power may be expected

Michigan State M Society Journal, Grand Rapids

31 777 838 (Dec) 1932

- Therapeutic Radiology in Relation to Infancy and Childhood A U Desjardins Rochester Minn —p 777
 Tumors of Female Breast R R Smith, Grand Rapids —p 787
 Some Critical Remarks on Recent Literature on Spinal Anesthesia F A Kelly Detroit —p 790
 Treatment of Trichomonas Vaginalis Vaginitis H H Cummings, Ann Arbor —p 794
 Physical Therapy of Commoner Skin Diseases H J Parkhurst Toledo, Ohio —p 796
 Percutaneous Method of Immunization Against Diphtheria E E Martner, Detroit —p 801
 *New Method of Skin Grafting C V Russell, Lansing —p 804
 Michigan's Department of Health C C Slemmons, Lansing —p 805

Skin Grafting—In skin grafting, Russell uses an abrasive surface The medium coarse sand paper of the carpenter does very well It may be dry, sterilized and rolled into a cylinder With the prepared forearm held adjacent, as it may be, to any part of the body, the cylinder of sandpaper is quickly scuffed across the forearm, causing the fine fragments of skin cells to be implanted on the defect, like salt from a shaker At the malpighian level, a burning sensation is produced and the cylinder is advanced The dressing of the grafted surface will vary with the surgeon The author favors compression with gauze, using perforated cellophane directly over the grafts

New Orleans Medical and Surgical Journal

85 387 480 (Dec) 1932

- Public Health and the Practicing Physician W S Leathers, Nashville, Tenn —p 387
 Goiter H R Mahorner New Orleans —p 395
 Sedimentation Rate of Erythrocytes Brief History and Discussion of Theories Application in Gynecology A Jacobs, New Orleans —p 404
 Angina Pectoris and Coronary Thrombosis T D Bourdeauz, Meridian, Mass —p 413
 Increasing Incidence of Amebic Dysentery as Warning for More Thorough Study of Diarrheas J G Archer Greenville, Miss —p 418

New York State Journal of Medicine, New York

32 1405 1468 (Dec 15) 1932

- Some Clinical Features of Deficiency Disorders C S Keefer, Boston —p 1405
 Relative Advantages of Toxin Antitoxin and Toxoid W A Holla, White Plains —p 1413
 Maternal Mortality Elizabeth M Gardiner, Albany —p 1414
 Medical Economics A Renaissance F S Wetherell, Syracuse —p 1418
 *Prevention of Colds D F Smiley, Ithaca —p 1420

Prevention of Colds—According to Smiley, there is at present no panacea for the prevention of colds Since epidemics of colds in student groups appear to be limited largely to the "cold-susceptible" 23 per cent, efforts directed at that particular group should be the most fruitful The interest of at least one seventh of these cold-susceptible students in the prevention of their colds can be aroused and sustained by offering "cold prevention" classes If, in these classes, matters of diet, alkalinization, ventilation, toning up of the skin vessels by ultraviolet rays or sunlight, and in special cases the correction of nose and throat abnormalities and the use of vaccines are stressed, an average reduction of approximately 46 per cent in the incidence of colds can be prophesied Which of these various factors is the most important is a question, but the ultraviolet or sunlight bathing is, undoubtedly, an essential factor in arousing and sustaining the interest of the patient in the project A definite advantage of this plan of attack is that it furnishes a means of applying a number of the principles that are now available for the prevention of colds

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below Single case reports and trials of new drugs are usually omitted

British Medical Journal, London

2 1089 1130 (Dec. 17) 1932

- Tuberculin in Diagnosis S L Cummins —p 1089
 Position Today of Tuberculin in Treatment R A Young —p 1091
 Comparative Physiology of Menstrual Cycle S Zuckerman —p 1093
 Headache Produced by Histamine and Its Mechanism G W Pickering with collaboration of W Hess —p 1097
 Use of Modified Double Thomas Frame in Treatment of Paralysis of Pophomyelitis Jean Macnamara —p 1098
 Ophthalmology in General Practice D V Giri —p 1101

Journal Obst and Gynec of Brit Empire, Manchester

39 743 996 (Winter) 1932

- Rupture of Uterus N M Bey —p 743
 Endometriosis Uteri Diffusa with Secondary Tuberculous Infection M J Stewart and C Oldfield —p 759
 Vitamin Deficiency in Antenatal Period Its Effects on Mother and Infant J P Maxwell —p 764
 Hepatic Lesions R H Paramore —p 777
 *Hypocine Amnesia in Labor Review of Eighty Cases C H G Macafee —p 804
 *Rare Abdominal Cyst A E Chisholm —p 811
 Angioma of Uterus Case P C Dutta —p 814
 Ovarian Carcinomas W Shaw —p 816
 Intraperitoneal Pressure and Its Changes During Pregnancy G W Thcobald —p 854
 *Epidemiology, Bacteriology and Treatment of Puerperal Sepsis Margaret Thomas —p 877

Scopolamine Amnesia in Labor—Macafee has used scopolamine in labor for the past year and a half He uses a modification of the method of van Hoosen, which consists in giving $\frac{1}{100}$ grain (0.00065 Gm) of scopolamine hydrobromide as soon as labor has definitely started, a second dose half an hour later and a third dose at the end of an hour All that is necessary to maintain the anesthesia for an indefinite period is to repeat the $\frac{1}{100}$ grain dose of scopolamine hydrobromide hypodermically every two hours He has varied the dosage from a single dose of $\frac{1}{400}$ grain of scopolamine hydrobromide to fifteen repeated doses In his thirty-three private cases, the results were exceptionally good in twenty-one cases, good in

six and fair in five. In his forty-seven hospital cases, the results were extremely good in twenty-five cases, good in thirteen and fair in nine. The advantages of the use of scopalamine are that it is easy to administer and, in a case that is seen early and properly treated, the patient passes through labor with the minimum of discomfort and wakes up after delivery in a much better condition than the ordinary patient.

Rare Abdominal Cyst—Chisholm reports the case of a woman, aged 49, who, on admission to the hospital, stated that she had had a lump across the stomach for several months. On examination, it suggested a large ovarian cyst, and the swelling could be felt through the vagina. The symptoms were not sufficiently urgent to make immediate operation necessary. When the abdomen was opened, the peritoneum of the anterior abdominal wall was found to be rather edematous, the pelvic organs, the appendix and the kidneys were found to be healthy. A cystic tumor, about the size of a large melon, was exposed. There were a few adhesions, none of them being intestinal. The tumor arose from the lower surface of the liver, the falciform ligament extending well down its anterior aspect. It was situated anteriorly, the lesser sac, stomach and gastro-hepatic omentum being behind it and free from it. The cyst arose from the inferior aspect of the liver, with which it was incorporated in front of the transverse fissure. The gallbladder showed round its right edge and had to be carefully dissected off. The tumor had a wide attachment above to the liver. The greater part of the tumor was removed, the cut edge being taken as near to the liver tissue as possible without actually entering it. The raw edges of the remainder of the base of the cyst were stitched over with catgut. The fluid that escaped from the cyst cavities was opaque but neither viscid nor blood stained. On the inner wall of one of the cystic cavities there was a dark stain, as if due to bile pigment. The fluid was not offensive or purulent. The gallbladder was not distended. The abdomen was closed in layers without drainage. When the patient was examined four months later, she was well and had no pain or tenderness. There was evidence neither of any recrudescence of the growth nor of free fluid in the abdominal cavity.

Puerperal Sepsis—Thomas classifies the lesions found in 800 cases of puerperal sepsis into four broad types of infection. In the first group the disease is limited to the lower parts of the genital tract; in the second there is evidence of an intra-uterine infection; in the third there is a spreading of pelvic inflammation involving the fallopian tubes, cellular tissue or peritoneum, and the fourth group includes all cases of blood infection without regard to the virulence or extent of the local lesion. There are degrees of severity within each group, but, on the whole, the gravity of the infection increases and the prognosis becomes more uncertain in the sequence given. A bacteriologic examination also shows that the frequency of streptococcal infections increases in the same order and that in the most serious type of the disease this organism is present in the blood or uterus in 75 per cent of the cases and is the determining factor in the ultimate issue. Local methods of treatment are restricted to the first two groups. Intra-uterine glycerin injections gave the most satisfactory and reliable response, whereas the oral administration of ergot and quinine was not followed by the good results claimed by certain authors. The amount of glycerin required varied with the degree of sepsis and with the stage of the puerperium, as much as 30 cc. being frequently necessary in recently delivered or grossly infected patients. The number of injections varied with the individual response. An analysis of the cases in the third and fourth group revealed the serious fact that in 70 per cent the streptococcus was the causal agent. The general treatment of these groups is similar to that of the first two groups though of a more intense character. In all cases, irrespective of grouping, the use of antiscarlatinal serum, in default of a specific serum for the streptococcus of puerperal sepsis, constitutes the only rational measure at present available. In the less severe infections of the earlier groups such a serum will have a prophylactic value, but the more serious infections demand its administration intravenously at the outset, on repeated occasions, and in a dosage to be determined by the nature of the response obtained. Metarsenobillon (a formaldehyde bisulphite derivative of arsphenamine) and vitamin A demonstrated conclusively that they do not possess any remedial properties that justify their administration.

Nourrisson, Paris

21 1 64 (Jan) 1933

- *Treatment of Hypotrophies of Early Infancy by Insulin P Lereboullet and P Baize.—p 1
Leukocytosis and Leukocytic Formula in the New Born J A Bauza —p 29
Prophylaxis of Congenital Syphilis E Lesne and A Linossier Ardoin —p 38

Hypotrophies of Early Infancy—Lereboullet and Baize conclude that the probable mode of action of insulin in the hypotrophies of early infancy consists in improving the carbohydrate metabolism and thereby the metabolism of fats and proteins, and permitting the fixation of large quantities of water in the tissues. This eutrophic action is clinically indisputable and is observed in about 80 per cent of the cases. It does not occur in athrepsia, but it is distinct in feeble infants (premature or not) whose weight curve remains static and in hypotrophic children in a state of denutrition before and after five months, whenever the cause of the nutritional disturbance is not linked to a well defined organic disturbance. The action of insulin seems to be less favorable in simple hypotrophies without emaciation, these appear to respond better to thyroid and thymic opotherapy. Daily doses of 1 unit of insulin per kilogram of weight seem to be sufficient and only exceptionally produce hypoglycemic accidents, which, moreover, are not serious. To prevent these accidents an additional amount of sugar should be administered in the diet. This is best done by adding from 20 to 30 Gm of sugar to the nursing bottle given fifteen minutes after an insulin injection, parenteral administration should be reserved for infants who vomit and for emergency in hypoglycemic accident. This excess of sugar also provides the infant with a supplementary ration, which insulin permits it to utilize. The insulin therapy is a temporary therapy and rarely needs to be continued more than three weeks.

Deutsche medizinische Wochenschrift, Leipzig

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Action of Adsorbing Remedies on Gastric Secretion R Pfaffenberg —p 94
Plaster Wire Splint in Treatment of Poliomyelitic Paralysis in Region of Shoulder H Hofer —p 95

"Catechin" in Therapy of Exophthalmic Goiter—Herzfeld and Frieder relate their experiences with thyroidal "catechin," a substance that Blum separated from the blood and that balances the action of the thyroid. The preparation of thyroidal catechin employed by the authors was in tablet form, each tablet containing 10 units. First they tried three tablets a day, but later they increased the dose to six and even nine tablets, and then gradually decreased it again. The improvement became noticeable as a rule during the second week of the treatment. The weight increased, the basal metabolism decreased, and sympathetic symptoms such as sweats and diarrhea disappeared quickly. The influence on the exophthalmos was likewise favorable, but the struma showed little change. The duration of the treatment varied according to the severity of the disturbance. As a rule, it had to be continued for from four to six weeks. The efficacy of the catechin preparation is largely dependent on certain dietary restrictions. During treatment the patients should abstain from meat, and stimulants in the form of coffee, tea, nicotine and alcohol should be avoided. The diet should supply large amounts of carbohydrates. Bread, foods prepared with flour, sweets, fruits and vegetables, and milk and milk products, particularly butter and cream, are recommended. Pure animal fats are permissible. The authors state that the treatment failed in only two of eighteen cases. One of these two patients did not follow the prescribed rules, and in the other one it was probable that a tumor existed in addition to the exophthalmic goiter. The disturbance was severe in all of the eighteen patients who were treated with catechin. Some of the patients had been under observation for several months.

and had proved refractory to other treatments. The authors state that studies are now under way to determine whether the thyroidal catechin influences the iodine content of the blood, as does insulin the sugar content of the blood of diabetic patients.

Deutsche Zeitschrift für Chirurgie, Berlin

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- Variations in Disease Result of Social and Geographic Influences H von Haberer—p 409
 Idiopathic Abnormal Bony Fragility Hilgenfeldt—p 433
 Duodenal Function and Gastric Surgery W Drügg—p 451
 *Symptoms and Roentgen Signs After Stomach Resection H Bremer and A Held—p 466
 Use of "Filling" in Two-Stage Extrapleural Extirpation of Esophageal Carcinoma Located Close to Bifurcation (Tracheal) Orator—p 485
 *Calcium Carbonate Bile H Markus—p 492
 Increased Incidence of Recurrence After Delayed Operations for Gallstone Disease Petkoff Pomashky—p 497
 Treatment of Indolent Wounds with Pankrederma Salve. F Flossbach—p 503
 Trauma as Cause of Cancer L Maiditsch—p 508
 *Use of Leeches in Treatment of Thrombosis T Straaten—p 513

Symptoms and Roentgen Signs After Gastric Resection—Bremer and Held report a clinical and roentgenologic study of fifty-seven patients operated on for gastroduodenal ulcer in von Haberer's clinic in Cologne. There were two gastro-enterostomies and fifty-five partial gastric resections of Billroth I or Billroth II type. A satisfactory follow up study was possible in forty-eight cases. The striking feature was the absence of motor disturbances and of abnormal roentgenologic signs on the one hand, and the frequent subjective complaints on the other. After the Billroth I resection the stomachs emptied, as a rule, in from thirty to sixty minutes and after the Billroth II operation in from twenty to forty minutes. The roentgen studies of stomachs after the Billroth II revealed an enlargement of the mucous folds. The lumen of the efferent loop is widened and the mucous folds are widened and thickened. There were no pathologic signs. Peptic jejunal ulcer was not observed. The emptying was fairly rapid but not dumping. The stomach after the Billroth I operation, observed as early as twenty days after the operation, was noticeably diminished in size. The emptying of this stomach took place synchronously with the inspiratory act. Apparently the diaphragm exerted an effect on the diminished and distended stomach. The axis of the stomach, however, was not sufficiently perpendicular to cause dumping. Numerous roentgenologic observations demonstrated the changes that take place in this small stomach until, in the course of from five to ten months, it arrives at a permanent form. It becomes larger and its capacity increases. Stenosis of the stoma was not observed. Decided changes were noted in the topography of the mucosa of the first portion of the duodenum, the circular folds of Kerkring assuming a longitudinal arrangement. The emptying of the stomach is now rhythmic, is no longer influenced by the inspiratory act, and takes from one to one and a half hours. This specialized function seems to be conditioned by the anastomotic ring and the new bulb. The authors believe that in no other type of operation do the conditions approach the normal as closely as after the Billroth I. They point out that while von Haberer insisted that the patients adhere to a strict diet for at least one year and do not resume their occupations for from four to six months after the operation, these conditions are frequently not followed, because of unemployment and poverty among their patients. Of the forty-eight patients followed up, twenty observed no diet but remained in good health. Fourteen patients adhered to a diet and presented no subjective complaints. Ten patients were too poor to follow a diet. They did not gain in weight and complained of symptoms. In four patients who were out of work, lived on an insufficient diet and indulged in tobacco and alcoholic drinks, the results were bad. Three of these became symptom free after a dietetic treatment of from four to six weeks. The authors recommend that this type of patient be observed for a period of from one to two years with the view of obtaining for him proper nourishment and timely treatment of subjective complaints.

Calcium Carbonate Bile—Markus reports a case of a pure calcium carbonate stone. A roentgenogram taken with the patient in the erect posture revealed a large, dense shadow at the upper border of the right sacro-iliac joint. It was

shaped like a half moon and presented a fluid level. A smaller shadow was present about two vertebrae higher. With a film taken in the recumbent posture the shadow appeared oval and lay somewhat higher than before. At operation a mass was palpated in the gallbladder and a stone, the size of a cherry, in the cystic duct. The removed gallbladder, examined roentgenologically before it was opened, gave the same shadow. When opened, the gallbladder was seen to contain a pale green, thin bile suggestive of a beginning hydrops. The cystic duct contained a cholesterol stone with a whitish coating. The fundus of the gallbladder was occupied by a white, soft, oval mass, 4.5 by 2.5 cm. Chemical investigation of the gallbladder contents revealed that they consisted of 98.35 per cent calcium carbonate and 1.65 per cent organic matter in which traces of cholesterol were present. The case is reported because of the extreme rarity of calcium carbonate stones, there being about eight cases recorded in recent literature. No explanation for their genesis exists. Because the stone casts a dense shadow, denser than that of the gallbladder in a cholecystogram, and because a fluid level is formed, a roentgenologic diagnosis should be possible.

Leeches in Treatment of Thrombosis—Straaten states that the incidence of postoperative thrombosis did not diminish in von Haberer's clinic despite the recourse to calcium, thyroxine and the introduction of large amounts of fluids. In the last decade French surgeons successfully treated postoperative thrombosis of the lower extremities with the application of leeches. The author reports twelve cases of postoperative femoral thrombosis treated by the application of leeches. The patients were carefully observed and offer a basis for an opinion as to the value of the treatment. There was not a single mortality in the group. A considerable reduction in swelling was usually observed after from twenty-four to thirty-six hours. The author applied, as a rule, three leeches, repeating the treatment forty-eight hours later, if necessary. A study of the circulation in the vicinity of the application of the leech revealed definite alterations. The bleeding time was increased, as evidenced by transient oozing from the wound lasting from twelve to eighteen hours. The coagulation time was likewise prolonged by from three and a half to four minutes. The erythrocytes were diminished by 500,000 and the leukocytes increased by about 1,000. These changes were strictly local and were not observed in the general circulation. The prolongation of the bleeding time and of the coagulation time is the result of the well known effect of hirudin, a secretion of the buccal glands of the leech. The author concludes that leech therapy is the most effective means in the treatment of postoperative thrombosis. There is no evidence that it is capable of loosening the thrombus. The beneficial effect is the result of an improvement in the local circulation.

Ugeskrift for Læger, Copenhagen

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- *Massive Fluorosis of Bones and Ligaments P F Møller and S V Gudjonsson—p 1
 Inhalation Therapy M Holst—p 9
 Frequency and Mortality of Abortion L Balslev—p 16
 Dispensation of Medicine in Form of Drops U Dircks—p 21

Massive Fluorosis of Bones and Ligaments—Møller and Gudjonsson's examination of seventy-eight workers engaged in crushing and preparing cryolite revealed silicosis of up to the second degree in thirty-nine. Three other occupational disorders also were noted. In thirty of the workers there was a peculiar sclerosing disease of bones and ligaments believed not to have been previously described in man and ascribed to deposit of calcium fluoride in the bones. Forty-two had from time to time a gastric disorder of acute onset and course, assumed to be the result of a slight cauterization of the gastric mucous membrane from transformation by the gastric hydrochloric acid of the ingested cryolite dust into hydrofluoric acid. In eleven cases there was a marked oligemia.

CORRECTION

Hematopoietic Hormone in Pernicious Anemia—In the abstract of Morris and his collaborators in *THE JOURNAL*, March 11, page 780, in the third and fourth lines the words "liver and liver extract" should be replaced by "concentrated gastric contents of swine."

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL 100, No 13

CHICAGO, ILLINOIS

APRIL 1, 1933

CALCIUM NEED AND CALCIUM UTILIZATION

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NEW YORK

In 1911, Sherman¹ called attention to the calcium deficiency of the average American dietary. Again, after twenty years, he² stated that "probably a larger proportion of the ordinary dietaries, both of adults and of children, can be improved by enrichment in calcium than in any other one chemical element."

It seems surprising, in view of the study and attention given in recent years to the subject of dietary needs, that such a calcium deficiency still exists. Yet, on further consideration, the reason for it may well be attributed to a prevailing opinion which holds that bread is "the staff of life" and the ordinary "mixed meal" represents a sufficient diet. This assurance is supported by Peters and Van Slyke³ in a recent publication, in which is found the statement that "under ordinary circumstances, of course, normal adults live in a state of calcium equilibrium, the daily loss being equal to the intake."

Information concerning calcium need, supply, utilization, and the forms in which it occurs in the body has been well presented by the work of Sherman, Orgler,⁴ Bergeim,⁵ Klinker,⁶ Aub⁷ and others. Enough data are available to show that, contrary to the general belief, the existence of optimum conditions in regard to calcium cannot be taken for granted but that special effort is necessary to assure adequate supply and utilization of this element.

CALCIUM REQUIREMENT

Sherman states that 0.45 Gm of calcium (0.63 Gm of calcium oxide) fills the actual daily requirement for adults, but this represents the minimum of actual need rather than the normal allowance. He considers that the normal, or "standard," allowance for protein, phosphorus and iron in the diet should be set 50 per cent above the average minimum, while for calcium the margin for safety should be even greater than this,

because of the uncertainties in regard to calcium absorption. He estimates the optimum allowance to be 0.70 Gm of calcium (1.0 Gm of calcium oxide), and his figures are widely accepted.

By a whole series of criteria, Sherman was able to show the beneficial influence of increased calcium (and vitamin G) through an additional amount of milk in the food mixture of families of rats thriving in the twenty-seventh generation on adequate uniform diet. He noted more rapid and efficient growth, lower death rates, and higher vitality at all ages, an increase of 10 per cent in the average longevity of adults, and greater extension of the prime of life, in that maturity was expedited and senility deferred in the same individual.

His conclusions are interesting. He says:

As there has been so strong a tendency to attribute longevity entirely to hereditary factors, it may be worth while to emphasize the fact that here in parallel groups of exactly the same heredity the influence of food on longevity is demonstrated with such degree of mathematical certainty as is represented by "chances" much better than 10,000 to 1, or with a hundredfold greater certainty than is usually considered necessary for the conclusive establishment of such scientific observations.

He believes that a number of weaknesses and increased susceptibilities to infection may be the results of calcium deficiency. He holds that the difference between a merely average and a better-than-average nutritional condition has a real significance for the maintenance of health or for recovery from disease.

Unfortunately, it is not so easy to conduct such clear-cut experiments on the human subject as those performed by Sherman on rats.

Inquiry into the dietary histories of more than 4,000 patients (unselected cases) in the New York Hospital revealed only two whose diets were adequate in calcium, and both of these were in the hospital because of injuries through accident and not because of disease.

If the same number of apparently healthy persons should be thus questioned, a very similar calcium deficiency might well be disclosed. But who can say that in these apparently normal people general health and longevity have attained their optimum biologic possibilities? Obviously, too many ailments occur in middle life, and people die too young.

Persons differ markedly in their adaptabilities. Some may respond to insufficient supply of essential elements in terms of frank disease, depending on their points of least resistance, others may maintain themselves in the manner of Sherman's rats, before the addition of milk to their diet—seemingly normal, but really considerably below their potentialities for full health and long life.

A large supply of calcium is present in the bones, and this store can be drawn on over a considerable period of time to substitute for a dietary lack without pro-

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¹ Sherman H. C. *Chemistry of Food and Nutrition*. New York: Macmillan Company, 1911, p. 289.

² Sherman H. C. *Some Recent Advances in the Chemistry of Nutrition*. J. A. M. A. 97: 1425 (Nov. 14) 1931.

³ Peters J. P. and Van Slyke D. D. *Quantitative Clinical Chemistry* (Interpretations). Baltimore: Williams & Wilkins Company, 1931, p. 806.

⁴ Orgler A. L. *Der Kalkstoffwechsel des gesunden u. des rachitischen Kindes*. Ergebn. d. inn. Med. u. Kinderh. 8: 142, 1912.

⁵ Bergeim Olaf. *Intestinal Chemistry*. J. Biol. Chem. 70: 35 (Sept.) 1920.

⁶ Klinker Karl. *Zustandsform des Serumcalciums und ihre Pathologie*. Be. Bedeutung. Klin. Wchnschr. 6: 791 (April 23) 1927.

⁷ Bauer Walter and Aub J. C. *Studies of Inorganic Salt Metabolism*. J. Am. Dietetic A. 3: 106 (Sept.) 1927.

Dr. Robert H. Bell Library

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ducing obvious osteoporosis or a reduced calcium content of the blood. It is, however, entirely possible that the calcium depletion of the bones in old age, which is considered a normal manifestation, may be but the result of a prolonged insufficiency in the calcium intake.

Like Sherman's results with rats, it has been my experience with normal persons that a sustaining diet enriched by the addition of calcium and vitamins makes for the difference between "passable" and "buoyant" health. And, furthermore, the marked improvement seen with the use of a high calcium regimen in the treatment of a number of apparently unrelated disorders corroborates Sherman's opinion of the advantages of an adequate calcium diet in the recovery from disease.

From the study of these cases, the importance of calcium in human nutrition and health seems far greater than is now commonly realized. Reports of this investigation will be given in another communication. The purpose at present is to consider how the adequate supply and utilization of calcium may be attained, accepting 0.70 Gm. as the optimum daily requirement. To this end three main considerations are essential:

- 1 Its sources of supply
- 2 The proper preparation of food in order to conserve the calcium content
- 3 The factors that govern its absorption

CALCIUM SUPPLY

Sources of calcium supply are food, water and calcium salts, as such. Meats and fish are known to be poor in calcium content, but the portions of fruits, vegetables and dairy products included in the ordinary diet are thought to be adequate sources of supply.

TABLE 1—Foods with Their Calcium Equivalents*

Milk	1.5 pounds (3.4 glasses)	} Good sources of calcium
Cheese	0.25 pound	
Apples	20.2 pounds (50 large apples)	} Erroneously considered good sources of calcium
Beans (string)	3.2 pounds	
Beets	0.4 pounds	
Bread (white)	7.3 pounds	
Bread (brown)	5.5 pounds	
Butter	11.0 pounds	
Cabbage	3.9 pounds	
Carrots	3.7 pounds	
Cauliflower	1.5 pounds	
Celery	2.7 pounds	
Corn (green)	27.5 pounds	
Eggs	2.6 (20 eggs)	
Grapefruit	7.3 pounds	
Grapes	12.0 pounds	
Lentils	1.8 pounds	
Oatmeal	2.3 pounds	
Oranges	4.9 pounds	
Pears	12.9 pounds	
Peas (green)	9.9 pounds	
Potatoes	17.0 pounds	
Rice	17.6 pounds	
Tomatoes	11.0 pounds	
Watermelon	26.4 pounds	
Meat (lean beef)	26.4 pounds	} Poor sources of calcium
Fish	14.7 pounds	
Water (Catskill and Croton)	190 quarts	

* Figures calculated from Sherman's tables

It is of interest to examine some of these supposedly calcium rich substances to see what amounts will furnish the calcium requirement. Table 1 gives a list of some of the common foods, the quantity of each, as indicated, containing the calcium requirement for one day 0.70 Gm. of calcium (1.0 Gm. of calcium oxide).

It is obvious that unless milk or cheese is included in the diet it would be exceedingly difficult to fill the calcium need, since inordinately large amounts of other foods and water would have to be ingested, quantities far beyond the capacity of the normal individual. Thus,

for example, if the needed calcium were to be obtained from white bread alone, it would be necessary to eat more than seven loaves, if from potatoes, seventeen pounds, if from butter (a dairy product), eleven pounds, and if from apples, fifty large ones. Whereas, about one quart of milk or one-fourth pound of cheese will supply the necessary calcium.

LOSS OF CALCIUM (AND OTHER SALTS)
IN COOKING

The poor supply of calcium furnished by vegetables and fruits is made still more meager through the method of cooking in common use. Vegetables are, for the

TABLE 2—Essential Factors in Calcium Metabolism

Intake	
Food	
Water	
Calcium salts (as such)	
Absorption	Through the intestines, regulated by
1 pH within the intestine	salts are absorbed in proportion to their relative solubilities
Acid pH 3.0-6.9	calcium salts are soluble in acid solutions
Neutral pH 7.0	
Alkaline pH 7.8-9.8	Intestinal, pancreatic, biliary secretions
calcium salts	are insoluble in alkaline solutions
2 Other substances in the diet	
(a) Excessive fats	calcium soaps of fatty acids are not absorbed
(b) Excess of phosphates	tertiary calcium phosphate is insoluble
(c) Oxalic acid (in leafy vegetables)	calcium oxalate is insoluble
(d) Lactose in fairly large amounts	promotes absorption
Blood	
Total calcium content	= 10 mg. per 100 cc.
(average normal)	
1 Nondiffusible	= 5 mg.
(bound to protein)	
2 Diffusible	
(a) Ionic	= 2 mg.
(b) Complex ionic	= 3 mg.
Relative concentration of these forms is determined by	
1 Parathyroid glands	
2 Vitamin D	
3 Amount of blood protein	
4 The acid base equilibrium	
5 Amount of phosphorus	
Nondiffusible calcium varies directly with the blood protein	
Diffusible calcium increases with decrease in pH	
Concentration of calcium is inversely proportional to that of phosphorus	
Bone	
Calcium	= 66 per cent by weight
1 Shafts	} \longleftrightarrow blood
2 Trabeculae	
Excretion	
1 Feces (70 per cent)	
2 Urine (30 per cent)	
On low calcium diets a continuous negative balance occurs	
Calcium intake	300 mg. (approximately)
Calcium output	790 mg.
Feces	600 mg.
Urine	190 mg.
Negative balance	490 mg.

most part, cooked in large quantities of water. Considerable amounts of the calcium and other salts are retained in the water, which is usually discarded. In restaurants, in America, the water containing the salts is frequently added to soups, but it is lost so far as the vegetables are concerned. Answers to questions addressed to a large number of housewives and cooks, over a period of more than five years, concerning their methods of preparing vegetables, show that only about 1 per cent of them use the water in which the vegetables are cooked. Sherman and Hawley⁸ and McClugage and Mendel⁹ showed that calcium is better absorbed from milk than from vegetables, another factor which makes vegetables a poor source of calcium supply.

In spite of widespread attention given to dietary needs in newspapers, magazines and health centers, the vast majority of people in America still cook the way they have always cooked. Physicians all too infrequently concern themselves with dietary requirements.

8 Sherman, H. C., and Hawley, Edith. Calcium and Phosphorus Metabolism in Childhood, *J. Biol. Chem.* 53: 375 (Aug.) 1922.
9 McClugage, H. B., and Mendel, L. B. Experiments on the Utilization of Nitrogen, Calcium and Magnesium in Diets Containing Carrots and Spinach, *J. Biol. Chem.* 35: 355 (Aug.) 1918.

Undoubtedly, much could be done to insure the utilization of the mineral content of food, if advice concerning its preparation came directly from the physician

Table 2 gives an outline of the essential factors in calcium metabolism

CALCIUM ABSORPTION

Calcium is absorbed through the small intestine and the degree of absorption is governed by two main factors (1) the hydrogen ion concentration within the intestine, (2) the relative proportion of other substances in the diet. Some investigators are of the opinion that vitamin D exerts an influence on the absorption of calcium. This matter, however, is not yet settled, since recent work tends to show that its effect is not so much on absorption as on the intermediary metabolism of calcium.

Hydrogen Ion Concentration—Solubility is essential for absorption. Insoluble calcium salts are formed in an alkaline medium and are thus not absorbable, whereas in an acid medium they are soluble and can be absorbed. Measures that promote intra-intestinal acidity favor the absorption of calcium.

Substances in the Diet Affecting Absorption—An excess of fats in the diet interferes with the absorption of calcium, fatty acids combine with calcium, forming insoluble soaps which cannot be absorbed. An excessive amount of phosphorus in proportion to calcium also inhibits absorption, a condition due, in all likelihood, to the formation of the insoluble tertiary calcium phosphate from which calcium is unavailable. Oxalic acid (present in leafy vegetables) combines with calcium, forming insoluble calcium oxalate, which cannot be absorbed.

Bergeim showed that absorption of both calcium and phosphorus is markedly increased by the addition of lactose to the diet. This result he attributes to the increased acidity due to lactic acid fermentation in the intestine. Other carbohydrates do not have this effect. Large quantities of sucrose favor absorption to a small extent, but maltose and starch actually decrease the absorption of both calcium and phosphorus. Mellanby¹⁰ states that cereals—bread, oatmeal, maize, rice—hinder the calcification of bone.

Bergeim also showed that cod liver oil aids the absorption of calcium and phosphorus, and thus suggests that vitamin D does exert some effect on this phase of calcium metabolism.

Kahn and Roe¹¹ have shown that calcium may be adequately absorbed from its various salts if they are taken in the interdigestive periods when the intestinal reaction is least alkaline. The failure of much oral therapy is due, undoubtedly, to the administration of calcium at times (usually after meals) when intestinal alkalinity is highest, and it is absorbed insufficiently or not at all.

In the light of these factors which govern the absorption of calcium it is likely that individual differences in the degree of absorption exist. Variability in the incidence of intestinal alkalinity among normal persons is probably as frequent as the occurrence of different degrees of gastric acidity. There is convincing clinical evidence that in at least one abnormal condition, that of hypersensitiveness, calcium is poorly absorbed, apparently because of a too high intestinal alkalinity,

since with the production of intra-intestinal acidity absorption becomes adequate.¹²

BLOOD CALCIUM

Klinke has shown that calcium exists in the blood in three forms: the nondiffusible, bound to protein, and the diffusible, of which there are two forms, the ionic and the complex ionic. The ionic is said to be the available calcium, but actually little is known concerning the utilization of these three forms.

The finding of a normal figure for the total blood calcium is commonly considered an indication of a normal calcium condition. This, however, is not always so, since imbalances among the three forms may occur even if the total amount is within the normal range. A total blood calcium (in the fasting state) below or above normal, on the other hand, is usually an indication of an abnormal calcium state.

The parathyroid glands and vitamin D are necessary for preserving the normal balance among these three forms, as are also the normal amount of protein and phosphorus in the blood and the proper hydrogen ion concentration. This situation is not a simple one and obviously entails a number of coordinations and interrelationships. In the light of our present knowledge, so far as the normal individual is concerned, it would seem that the adequate supply of protein, calcium, phosphorus and vitamin D will assure the proper balance. In diseases of the parathyroid glands, or in conditions in which the protein content of the blood is increased or reduced in amount, in acidosis or alkalosis, special measures directed toward the control of the disorders must be employed.

HIGH CALCIUM, HIGH VITAMIN DIET

An adequate calcium schedule is one which not only contains the necessary amount of calcium but also those factors which make for the proper utilization of calcium.

The term "high calcium, high vitamin" is used to describe a diet in which all the food essentials are included but in which calcium and vitamins are especially stressed.

It is interesting to note that the various dietary regimens used in the treatment of tuberculosis, and devised especially to supply sufficient calcium, are exceptionally inadequate, largely because the absorption of calcium is rendered insufficient by too frequent feedings and by the food combinations commonly used.

By "high calcium" is meant from 0.70 to 1.0 Gm of calcium, which may be obtained from one quart of milk, or from one-fourth pound of cheese. If, for any reason, these foods cannot be taken, this amount may be obtained from 80 grains (5 Gm) of calcium lactate or 160 grains (10 Gm) of calcium gluconate a day. By "high vitamin" is meant some form of vitamin D (the equivalent of 30 drops of viosterol) in addition to from 6 to 8 ounces (180 to 240 cc) of orange juice and from 6 to 8 ounces of tomato juice. If calcium salts are substituted for milk or cheese, the vitamin A supplied by the latter is lost, and to make up for this deficiency cod liver oil, or a cod liver oil concentrate (which contains both vitamins A and D), is employed in place of viosterol.

Orange and tomato juices are used in the diet because of their content of vitamins A, B and C, and of citric acid. Sherman says, "probably each of the vitamins A, C and D bears an important relation to the metab-

¹⁰ Mellanby, Edward. Foodstuffs and the Calcification of Bone read at the annual meeting of the British Medical Association July 29, 1932.
¹¹ Kahn, B. S. and Roe, J. H. Calcium Absorption from the Intestinal Tract in Human Subjects. *J. A. M. A.* 86: 1761 (June 5) 1926.

¹² Unpublished data.

olism of calcium and phosphorus in the development of bones and teeth." The mechanism of their action awaits further investigation. Vitamin B plays a rôle in the maintenance of intestinal tonicity¹³ and in this effect probably has a bearing on the absorption of calcium as well as of other substances. Citric acid affects the diffusibility of calcium in the blood and plays an important part in certain diseases of the blood vascular system.¹²

It is exceedingly unusual to find an intolerance to orange or tomato juice. They are taken without difficulty even in cases of peptic ulcer. In fact, results in some of the disorders of the digestive tract—constipa-

TABLE 3—Schedule for the High Calcium, High Vitamin Diet

Breakfast	
Orange juice, 6 to 8 ounces	
Another fruit (except bananas), cooked or raw (if desired)	
Two glasses of milk (or clabber, or buttermilk)	
Coffee, if desired	
Luncheon	
Vegetables cooked or raw (except potatoes)	
Salad (with lemon dressing and without oil)	
Fruit, cooked or raw (except bananas)	
Two glasses of milk (or clabber, or buttermilk)	
One or two hard boiled eggs (if desired)	
Dinner	
Tomato juice, 6 to 8 ounces	
Meat or fish	
Anything else desired	
Ordinary portions to be taken, and no second helpings if weight reduction is desired	
Eight teaspoonfuls of lactose a day. The lactose may be taken at any time but it is suggested that it be taken in the milk, 2 teaspoonfuls to each glass.	
Some form of vitamin D 30 drops of viosterol, or its equivalent	

tion, duodenal ulcer and colitis—are among the most satisfactory obtained from the use of the high calcium, high vitamin diet.

Ordinarily, vitamin D is supplied by the action of the sun on the skin, and only small and inadequate amounts are found in food. The question of the desirability of having vitamin D every day throughout the whole year is still unsettled. Until further knowledge concerning the storage and utilization of this substance in the body is acquired, a plan is suggested, based on the fact that nature provides both sunny and rainy days. Ordinarily, during the summer months, if exposure to the sun is possible and a good coat of tan can be obtained, no other means of administering vitamin D is prescribed. Individuals who do not tan apparently do not manufacture their own vitamin D very adequately. Fair-skinned persons who do not tan may therefore take vitamin D by mouth four days a week the year round, thus getting four sunny and three rainy days a week. What relationship there is between pigmentation of the skin and activation of the sterol of the skin by the actinic rays to produce vitamin D is undetermined. In respect to this relationship it is an interesting phenomenon that three individuals, after taking viosterol for several months, tanned in the sun for the first time in their lives.

Bread and other starches, butter and oil are omitted from the two high calcium meals (breakfast and luncheon) because, without starch and additional fat, conditions are more favorable for the absorption of calcium.

Calcium and vitamins may, of course, be acquired by other dietary arrangements, but this schedule is designed to promote the maximum absorption of calcium from

the diet. In America it is the common practice to strive for as much variety in foods as possible, on the ground that people tire of eating the same foods every day and so lose their appetites. This attitude is, evidently, largely artificial, and it is of considerable interest to see an initial opposition to the sameness of the two meals (breakfast and luncheon) give way not only to willing acceptance but to complete enjoyment of the regimen. It is extremely rare to hear complaints of monotony.

The long-lived Bulgarians of Metchnikoff fame were thought to owe their longevity to *Bacillus acidophilus*, which, in prevailing over the putrefactive organisms in the intestine, saved the individual from absorbing toxins. May not this longevity be due rather to their diet, largely composed of sour milk and sour cabbage, thus providing sufficient calcium and the optimum acid medium for calcium absorption?

Cantarow,¹⁴ in a recent report on calcium therapy, considers the pharmacologic effects and the use of calcium salts, vitamin D and parathyroid extract in tetany, disturbances of ossification, pregnancy and lactation, eclampsia, acute hepatic insufficiency, jaundice, hemorrhage, edema, atopy, lead poisoning, tuberculosis, ulcerative and mucous colitis, and a number of other conditions. The fundamental importance of calcium to cell life accounts for its wide usefulness. Calcium medication is undoubtedly of value in a number of diseases. Its effectiveness has been greatly increased through the investigations of Kahn and Roe (who showed how calcium, by the oral route, is best absorbed), through Collip's parathyroid extract, and through the production of calcium gluconate, which makes possible the intramuscular administration of calcium.

Scant attention, however, has been given to calcium therapy by means of diet, a method that yields surprisingly satisfactory results.

SUMMARY

- 1 The average American dietary is poor in calcium content.
- 2 The calcium requirement is 0.70 Gm of calcium (1.0 Gm of calcium oxide) a day.
- 3 General health is improved and recovery from disease aided when the optimum calcium supply and utilization are assured.
- 4 Without milk or cheese in the diet it is difficult to obtain the needed calcium through food alone.
- 5 Utilization of calcium is ineffectual, even with a sufficient calcium intake, unless the factors that control the absorption of calcium are also adequate.

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14 Cantarow, Abraham. Calcium Metabolism and Calcium Therapy, Philadelphia, Lea & Febiger, 1931, p. 125.

Osteitis Fibrosa Cystica—Hyperparathyroidism or generalized osteitis fibrosa cystica is a clearcut, distinct disease entity caused by an increased secretion of the parathyroid hormone. This disease was first recognized clinically by Mandl in Vienna and by Du Bois in America. All cases thus far reported have been due to a parathyroid adenoma. The fact that it is a disease of endocrine origin implies that the entire skeleton is affected. Arthritis and Paget's disease are never generalized skeletal diseases. This fact alone argues against their being of parathyroid origin. Hyperparathyroidism is a disease characterized by definite alterations in the calcium and phosphorus metabolism as well as by certain symptoms and signs—Bauer, Walter. Hyperparathyroidism. A Distinct Disease Entity, *J Bone & Joint Surg* 15 135 (Jan) 1933.

13 Gross, L. The Effects of Vitamin Deficient Diets on Rats with Special Reference to the Motor Functions of the Intestinal Tract in Vivo and in Vitro, *J Path & Bact* 27 27 (Jan) 1924.

DEHYDRATION IN EPILEPSY

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The pioneer work in the clinical application of restricted fluid intake to the treatment of epilepsy was done by Temple Fay,¹ although Hartenberg² claimed earlier use of this method as far back as 1913.

This treatment was based on the finding of increased collections of cerebrospinal fluid in epileptic patients, demonstrated by surgeons,³ by pathologists, and by roentgenologists using encephalography. Further basis for this method of treatment had been found in experimental work showing that excessive fluid predisposes animals to convulsions. Also, Gamble⁴ showed that there was a tendency to retention of body fluids just before a seizure, and McQuarrie⁵ demonstrated a parallelism between hydration and increased seizures.

Fay's⁶ detailed observation on the therapeutic effect of dehydration in twenty-three cases of epilepsy appeared in 1931. His results showed a definite improvement in about 60 per cent of the cases.

Further favorable results from a combination of dehydration with a ketogenic diet were reported by Palmer⁷ in one case and by Abbott and Fresk⁸ in twelve cases. Likewise, there has been a surgical application of Fay's "mechanical theory of epilepsy" by Swift,⁹ who has developed an operative procedure to relieve venous obstruction by "mobilization of the transverse sinus."

This conception of the nature of epilepsy has been questioned by Pagniez¹⁰ and challenged by Cobb¹¹. Cobb agrees with the observation of abnormal accumulations of cerebrospinal fluid in the arachnoid space but asserts that the pressure must be higher in the ventricles than in the arachnoid space about the cisterna magna, and lowest of all in the region of absorption over the ventricles. Fremont-Smith,¹² by accurate pressure measurements, demonstrated little difference during periods of dehydration as compared to periods of forced hydration.

On the clinical side, Cameron¹³ found dehydration of little value in the treatment of twelve institutional epileptic patients. Doolittle¹⁴ reported only eight of twenty-four epileptic patients improved on a regimen combining ketogenic diet and water restriction.

In view of the conflicting opinions on this subject, we shall report our clinical experience with the dehydration treatment of twenty-one epileptic patients. We realize that a report on therapy in epilepsy must take into account the type of patient, the duration of the illness and especially the factor of time. In consequence, the evidence gained from a brief study of so few cases over a short space of time in a disease so intangible as epilepsy can carry little weight.

NATURE OF STUDY

Our twenty-one subjects were taken from a larger group of some 100 epileptic patients who attended an outpatient epileptic clinic. There were two criteria used in the selection of patients: 1 The attacks should be of a type and frequency that could be tabulated. 2 The patients should be able to cooperate.

The majority of our patients belonged to the idiopathic epileptic group, four had organic brain lesions, one case was diagnosed hystero-epilepsy. Most of our patients had been under our own observation for a period of from one to ten years, the course of the disease being well known in each instance. A routine Binet mental test, rechecked at intervals, showed an average intelligence quotient of 75.

PROCEDURE

Nine patients were hospitalized, each for a period of about a month. The daily free fluid intake was started at 1,000 cc., and reduced by 100 cc each day or on alternate days, until the patient was allowed to have but 400 to 500 cc. This level was maintained for from one to two weeks, then the patient was allowed all the fluids he could take—from 4 to 7 liters in twenty-four hours. A comparison was made between the frequency of attacks during the periods of dehydration and of hydration.

Twelve ambulatory patients, excluding those who had been hospitalized, were placed on a similar dehydration program. They were advised, after a gradual reduction, to limit their free fluids to 500 cc daily. In addition, most of them were put on a diet with a predominant acid ash. The subjects who had been taking phenobarbital were allowed to continue with such medication, lest the discontinuance of sedative therapy precipitate status epilepticus. (One of the first "dehydration" patients, not included in this study, died in status.)

This regimen was maintained from three to twenty-two months. The cooperation was checked frequently by the simple expedient of measuring the specific gravity of the urine. A low specific gravity was a clear indication that the diet was not strictly followed.

Unfortunately, perfect cooperation was not secured in all instances. The adherence of the average epileptic patient to a strict regimen is subject to lapses. Even in hospitalized cases, it is sometimes difficult to combat thirst.

RESULTS OF TREATMENT

The results of the dehydration treatment are summarized in the accompanying tables. Table 1 gives the details of the hospitalized patients. Table 2 is a condensed outline of the data from the ambulatory patients.

The nine hospitalized patients presented cases of chronic epilepsy, most of them had been having frequent seizures over a period of years. The course of their illness had been little influenced by earlier therapy. A brief trial of dehydration made little change in their status. It is noteworthy that a change in the regimen from dehydration to hydration induced seizures in one

From the Neuropsychiatric Clinic, Lakeside Hospital, Western Reserve University School of Medicine.

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2. Hartenberg, P. La deshydratation dans le traitement de l'épilepsie. *Presse med* 30: 101 (Jan 21) 1931.

3. An extensive bibliography is given in *Epilepsy and the Convulsive State* by the Association for Research in Nervous and Mental Diseases, Baltimore: Williams and Wilkins Company, 1931.

4. Gamble, J. I. and Hamilton, Benet. Acid Base Composition of Urine from an Epileptic Child. *Bull Johns Hopkins Hosp* 41: 389 (Dec.) 1927.

5. McQuarrie, Irvine. Epilepsy in Children. *Am J Dis Child* 38: 451 (Sept.) 1929.

6. Fay, Temple. The Dehydration of Epileptics, in *Epilepsy and the Convulsive State*.

7. Palmer, H. D. Fluid Intake and Ketogenic Diet in Transmastic Epilepsy. *J A M A* 95: 197 (July 19) 1930.

8. Abbott, W. D. and Fresk, Evelyn. Dehydration in Epilepsy. *J Iowa M Soc* 21: 241 (May) 1931.

9. Swift, G. W. Epilepsy: Relation of Water Metabolism and Cranial Sinuses. *Surg, Gynec. & Obst* 54: 556 (March) 1932.

10. Pagniez, P. H. Le rôle de l'hydratation dans l'épilepsie. *Presse med* 38: 1574 (Nov 19) 1930.

11. Cobb, Stanley. Causes of Epilepsy, *Arch Neurol & Psychiat* 27: 1245 (May) 1932.

12. Fremont-Smith, Frank. The Influence of Fluid Intake on the Intracranial Pressure in Man. *Arch. Neurol. & Psychiat* 28: 237 (July) 1932.

13. Cameron, D. E. Dehydration Method in Epilepsy. *Am J Psychiat* 11: 123 (July) 1931.

14. Doolittle, G. J. Dehydration and Ketogenic Diet in Epilepsy. *Psychiatric Quart* 5: 135 (Jan) 1931.

subject but did not precipitate attacks in the others. Also, the withdrawal of phenobarbital from those on a dehydration program induced attacks regularly.

There was no striking change in the general health of the patients during dehydration. All complained of thirst—a few, quite bitterly. The others became readily accustomed to the low intake. As has been noted by other observers, the specific gravity of the urine rose. Acetone appeared occasionally.

years. Earlier therapy had not benefited them substantially.

During the period of dehydration, there was no marked alteration in the general health or in the frequency of the seizures. E. G., a girl, aged 15 years, whose epilepsy developed after an attack of encephalitis, responded well to the treatment with phenobarbital and dehydration. The attacks stopped for eighteen months. When the dehydration was discontinued, there were no

TABLE 1—Hospitalized Patients

Number	Patient	Age, Years	Duration of Disease	Type	Previous Status	Status During Dehydration	Effect of Hydration	Comment
1	M S	35	24 yrs	Idiopathic	Phenobarbital and sodium borate, 1 grand mal attack per month	500 cc. for 2 weeks, no attack "uncomfortable from thirst"	7 liters in 24 hours, 2 attacks	Further dehydration ambulatory, no change
2	M C	17	16 yrs	Idiopathic	Frequent attacks little influenced by therapy	500-200 cc., one grand mal attack in 2 weeks	5 liters in 24 hours, no attacks induced	Dehydration, ambulatory, slightly better
3	S B	23	12 yrs	Idiopathic	Frequent attacks, little influenced by therapy	1,000 cc. for 10 days, 500 cc. for 10 days, phenobarbital stopped, grand mal attacks	5 liters plus phenobarbital, no attacks	Dehydration ambulatory, no benefit
4	I Z	18	11 yrs	Idiopathic	1 grand mal attack per week	600 cc. for 4 weeks, grand mal per week	4.5 liters, no change	Went to epilepsy colony
5	T Z	18	7 yrs	Idiopathic	Grand mal per week on phenobarbital	2 weeks 600 cc., same	Moderate hydration, no change	Dehydration, ambulatory, no change
6	S K	13	1 yr	Idiopathic?	Occasional petit mal attacks	400 cc. for 4 weeks, unchanged	No hydration	No follow up
7	A C	45	33 yrs	Idiopathic	Frequent (grand mal per week) attacks on phenobarbital	600 cc. for 2 weeks, no change	No change	Short psychotic episode
8	S B	32	23 yrs	Idiopathic	1 grand mal attack per week	400 cc. for 2 weeks, no change, spinal fluid pressure	Unchanged, same during hydration and dehydration	Dehydration not followed
9	B B	20	17 yrs	Organic	Frequent grand mal attacks	600 cc. for 2-3 weeks, no change, phenobarbital stopped, grand mal attack	Hydration of 6 liters plus ampoules of pitressin, no attacks	Dehydration not continued

TABLE 2—Ambulatory Patients

Number	Patient	Age, Years	Duration of Disease	Type of Epilepsy	Previous Status	Period of Dehydration	Average Seizures		Comment
							Before	After	
1	V V	13	7 years	Idiopathic	Attacks unchanged by sedatives, ketogenic diet, etc.	10 months	15	14	No change
2	A T	19	18 years	Idiopathic	Phenobarbital, no effect	8 months	23	23	Course unchanged
3	P M	40	3 years seizures also from 1892-1902	Organic (?) arterio-sclerosis	Phenobarbital, pellagra diet, no change	7 months	5	6	Attacks continued
4	E G	16	15 years	Organic (?) encephalitis in infancy	No previous study	18 months	23	0	Attack free during dehydration plus phenobarbital
5	A B	22	9 years	Organic (?) encephalitis at 2 years	Improved by phenobarbital	14 months	1	23	No improvement
6	S D	41	4 years	Idiopathic	Slight improvement by phenobarbital	8 months	14	13	No change
7	W M	28	19 years	Idiopathic	Slight improvement by phenobarbital	14 months	1	1	No change
8	P C	41	7 years	Idiopathic	Improved by phenobarbital	8 months	0.1	0.1	No change
9	F G	40	9 years	Organic (?) chronic alcoholism	Little response to therapy	22 months	58	37	No remarkable change
10	L W	41	15 years	Idiopathic	Some improvement under sedatives	9 months	14	0.3	Practically no change
11	E C	30	20 years	Idiopathic	Slight improvement with sedatives	3 months	12	12	No change
12	S G	32	20 years	Idiopathic	Sedative, ketogenic diet, little improvement	24 months	12	12	No change

Four of the nine patients continued on a regimen of dehydration following the hospital stay. M. S. showed no change in the number or severity of attacks for a period of six months. B. B. likewise was not benefited by the low fluid intake. M. C. was decidedly relieved for three months, only to suffer a return to her usual periodicity of seizures. T. Z. was improved during dehydration, but there was further reduction in attacks when unlimited fluids were allowed.

The twelve patients included in the ambulatory group were likewise chronic epileptic subjects whose seizures were frequent and had been present for a period of attacks, but when the phenobarbital was discontinued, the attacks returned. The benefit that this patient enjoyed was therefore to be attributed more to the sedative therapy than to the dehydration.

COMMENT

In general, we felt that the influence of dehydration was not significant. There were no clear-cut instances of marked improvement. The hospitalized patients had almost as many seizures during strict fluid limitation as during a copious fluid intake. Patients who had been 'free' of attacks on phenobarbital and dehydration

developed spells when phenobarbital was omitted but did not develop seizures when fluid was allowed.

Our negative results, consistent with Cobb's interpretation, are out of harmony with the favorable reports of Fay and others. For this difference there are several possible explanations. Our patients had chronic epilepsy and their illness could be little altered by any therapy. The same explanation might be offered for the negative results reported by Cameron for institutional cases. Secondly, our patients may not have cooperated perfectly. It is doubtful, however, whether patients can follow a strict regimen of dehydration when all other medical teaching is to "drink all the water you can." Lastly, the preliminary encephalography performed by Fay for his patients induced a reaction which reaches far beyond the mechanical influence of fluid withdrawal. Grant¹⁵ reports an increased cell count after encephalography. Two of our patients not listed in this series because dehydration was not instituted remained free of attacks for long periods after encephalography alone.

SUMMARY

Our results were essentially negative, a program of dehydration had little influence on the course of the epilepsy. The change to hydration did not, with any regularity, precipitate attacks. The results of other changes in treatment, such as withdrawal of phenobarbital, emphasized the relatively minor role played by fluid intake.

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TREATMENT OF LOCALIZED STAPHYLOCOCCIC INFECTIONS WITH STAPHYLOCOCCUS TOXOID

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In 1928 an immunologic disaster occurred at Bundaberg, Queensland, which resulted in the death, within twenty-four hours, of twelve children out of twenty-one injected with diphtheria toxin-antitoxin mixture, subsequently proved to be contaminated with *Staphylococcus*. Since the publication of the report of the royal commission¹ appointed to inquire into these fatalities, there has been a noteworthy revival of interest in the toxigenic properties of the *staphylococcus*. It would be out of place here either to offer an historical survey of published work on *staphylococcus* filtrates or even to discuss in detail the various properties that have been attributed to them. But mention should be made of the work of Burnet,² which has received confirmation and amplification from many quarters, establishing the fact that under appropriate environmental conditions certain strains of *staphylococci* will produce a true exotoxin.

STAPHYLOCOCCUS EXOTOXIN

The effects of this toxin on the cells and tissues of the rabbit are specific and highly destructive. Erythrocytes, for instance, are hemolyzed and leukocytes disintegrated, while necrosis of epidermal, subcutaneous or

muscular tissues results from injection into them of relatively small amounts of *staphylococcus* toxin. Further, if a sufficient quantity of *staphylococcus* toxin is injected directly into its blood stream, a normal rabbit will die with characteristic signs and remarkable rapidity. These effects are reproducible on the cells and tissues of other laboratory animals. For instance, the erythrocytes of the sheep, cow, monkey, rat, guinea-pig, cat, horse and man are to varying degrees susceptible to lysis by *staphylococcus* toxin, although rabbit erythrocytes are much more susceptible than those of the other animals tested, and for some reason, so far unexplained, the rabbit alone among these animals has erythrocytes against which the hemolytic power of a *staphylococcus* filtrate serves as a quantitative measure of its true toxin content. Again, the skin of the guinea-pig, though less sensitive than that of the rabbit, can also be used for the quantitative assay of *staphylococcus* toxin through its dermonecrotic power, and Parish and Clark³ have recently published their reasons for preferring the guinea-pig for this purpose. I have noted also that subcutaneous injection of the toxin will lead to local necrosis, not only in the rabbit but also in the guinea-pig, mouse and horse.

The rapid death of rabbits given an intravenous injection of a *staphylococcus* filtrate was reported twenty-five years ago by Kraus and Pribram,⁴ and their observation has been confirmed by various subsequent writers. Within the past year or so Gross,⁵ Parish and Clark,³ and I⁶ have independently noted that guinea-pigs and mice were susceptible to the rapid lethal effect of *staphylococcus* toxin. Further, I have found that the cat and the rat will also die within a few minutes, and have already reported the death of a horse within two hours, after intravenous injection of *staphylococcus* toxin. The pathologic changes found in the tissues of animals killed in this way are very characteristic and will shortly be described in a separate publication.

A fairly close acquaintanceship with these properties of *staphylococcus* toxin and a study of the toxigenic capacity of strains isolated from human patients led me to suppose that many of the pathologic changes in localized staphylococcic infection might be attributable to the exotoxin. If this supposition was correct, and a suitable antigen was available, it appeared possible that active immunization of human patients against staphylo-toxin might result in a favorable modification, and perhaps cure, of their present staphylococcic infections, with some degree of protection against similar infections in the future.

STAPHYLOCOCCUS TOXOID

The fact that *staphylococcus* toxin could be detoxicated by the addition of solution of formaldehyde and yet remain antigenic (a procedure to which Ramon's work on diphtheria toxin had drawn renewed attention a few years previously) was apparently first recorded by Burnet² in 1929. More recently, Burnet⁷ has discussed in three papers the optimum conditions for preparing the toxoid, and also its flocculating properties and binding power against animal antitoxic sera. Panton, Valentine and Dix,⁸ and I⁶ have also

³ Parish H J and Clark W H M. *J Path & Bact.* **35** 251 (March) 1932.

⁴ Kraus R and Pribram E. *Wien klin Wchnschr.* **19** 493 1906.

⁵ Gross Hans. *Ztschr f Immunitätsforsch. u. exper Therap.* **73** 14 1931.

⁶ Dolman C. E. *Canad Pub Health J.* **23** 125 (March) 1932.

⁷ Burnet F M. *J Path & Bact.* **34** 471 (July) 759 (Nov.) 1931.

⁸ Panton P N, Valentine F C O and Dix V W. *Lancet*

2 1180 (Nov. 28) 1931.

¹⁵ Grant F C. *Ventriculography and Encephalography.* *Arch Neurol & Psychiat.* **27** 1310 (June) 1932.

¹ Report of the Royal Commission of Inquiry into Fatalities at Bundaberg, 1928.

² Burnet F M. *J Path & Bact.* **32** 717 (Oct.) 1929.

noted the possibility of detoxicating staphylococcus toxin with solution of formaldehyde. Before attempting to immunize human beings therewith, I used toxins treated with formaldehyde ("toxoids"), obtained from highly toxigenic staphylococcus strains, as antigens for rapidly inducing a marked degree of active immunity in the rabbit and horse, against the hemolytic, dermonecrotic and lethal properties of the toxin. The serum of animals immunized in this manner neutralized and gave passive protection against the same properties of toxin prepared from any strain.

A group of six normal male laboratory workers then volunteered to receive increasing doses of staphylococcus toxoid at weekly intervals by subcutaneous injection. An increase in the serum content of staphylococcus antitoxin was in each case measurable at the end of the course of injections. The actual increment varied within wide limits in the different cases. The reactions also varied with the different individuals, from the slightest local tenderness to a painful, red, swollen arm, with mild general malaise on the day following the injection. In no instance was the reaction of such magnitude as to preclude the advisability of giving small subcutaneous injections of the toxoid to human patients suffering from localized staphylococcic infections.

The samples of toxoid used in this work were prepared by adding 0.3 per cent solution of formaldehyde (U S P) to the pooled toxins obtained from several highly toxigenic strains, recently isolated from staphylococcic lesions of various types in human patients. The toxins were obtained by means of a modification of Burnet's method, which I⁹ have fully described elsewhere. After the toxin treated with formaldehyde had been incubated at 37 C for forty-eight hours, samples were taken out and tested at intervals for residual toxicity. The toxoid had to pass very stringent tests before being released for use on human patients. For example, a representative pooled toxin is one of which originally 0.0003 cc sufficed completely to hemolyze 1 cc of a 1 per cent suspension of rabbit erythrocytes in physiologic solution of sodium chloride after one hour's incubation in the water bath at 37 C, of which 0.00014 cc when injected intradermally into the back of a closely clipped rabbit would induce an area of necrosis having a diameter not less than 0.5 cm, and of which 0.1 cc injected intravenously in a rabbit weighing 1 Kg would cause death of the animal within one hour. Such a toxin would not be considered sufficiently detoxicated until 0.1 cc would induce neither hemolysis nor skin necrosis with the aforementioned standard conditions, or until 3 cc could be injected intravenously into a normal rabbit's veins without causing any apparent symptoms. When these criteria were satisfied, the toxoid would be Seitz-filtered, tested for sterility and submitted to the following final tests. Five cc was injected subcutaneously into a normal guinea-pig, 0.5 cc intraperitoneally into a normal mouse, and 0.1 cc subcutaneously into a normal human being, in order to detect the presence respectively of excess of nonspecific toxic substances, of antiseptic, or of whatever might make the toxoid unsuitable for injection into human beings. The antigenicity of the final product was verified by provoking therewith an active immunity in the normal rabbit against staphylococcus toxin.

PLAN OF TREATMENT

Preliminary animal tests indicated that if the toxoid was to be injected subcutaneously, a slowly increasing

dosage at intervals of from five to seven days was likely to provoke the best response in human subjects. The plan of treatment finally adopted, and in essentials always adhered to, was as follows. The initial dose of 0.05 cc was given subcutaneously into the arm above the deltoid muscle insertion. Successive doses of 0.1, 0.15 and 0.2 cc were given by the same route every five to seven days. Before the first injection of the toxoid, and again a few days after the fourth injection, 2 cc of venous blood was taken from the patient and allowed to clot. The serum was pipetted off, inactivated by heating at 56 C for thirty minutes, and its content in staphylococcus antitoxin then estimated by titration of its antihemolytic power against a staphylo toxin of known hemolytic unitage, with the use, as an indicator, of a 1 per cent suspension of "packed" rabbit erythrocytes in physiologic solution of sodium chloride.⁹

By this method, after the four doses of antigen had been given, an increased amount of circulating staphylococcus antitoxin was in every instance demonstrable, which was, in general, commensurate with the degree of clinical improvement that had meanwhile occurred. The first series of injections was usually supplemented by a further series of four or more larger doses, the antitoxin content of the serum being again assayed as occasion seemed to demand, and in every instance a few days after the complete course of injections had been given. Patients were required to report, as far as possible, at monthly intervals thereafter, in order that their continued freedom from recurrence of infection might be ascertained and a blood specimen taken for estimation of circulating antitoxin.

Treatment with the toxoid was undertaken only when the clinical signs of a primarily staphylococcic infection were confirmed by the isolation from the infected site of a toxigenic staphylococcus in pure or almost pure culture. The hemolytic power of toxins derived from such strains, against a 1 per cent suspension of rabbit erythrocytes in physiologic solution of sodium chloride, varied between the wide limits of 5 and 10,000 hemolytic units per cubic centimeter, the majority of strains yielding toxins of between 200 and 1,000 hemolytic units per cubic centimeter. Since no obvious correlation was noted between the type or severity of the clinical infection and the capacity of the causal organism to produce toxin in vitro under the standard conditions of the method used, and since the toxins produced by different staphylococcus strains appear to possess qualitatively the same antigenic potentialities, no advantage was considered likely to derive from preparing a separate autogenous toxoid for the immunization of each patient. A toxoid was therefore made from the pooled, highly potent toxins derived from ten selected strains.

The limited space available precludes any attempt to give the clinical history and serologic data in each of twenty-eight patients suffering from intractable staphylococcic infection who have been successfully treated with a series of injections of this toxoid. A brief summary of the results obtained is therefore given, an outline of one particularly interesting case being offered as an epitome of the others.

Sixteen patients, aged from 11 to 60 years, had severe boils. In some instances, boils had recurred in crops for several years. In others, patients had never been free from boils for many months. An average of 2 cc of staphylococcus toxoid was

⁹ There is now abundant experimental evidence supporting this as an authentic method of staphylococcus antitoxin assay. It was chosen to titrate the antihemolytic power of the serums rather than their anti-dermonecrotic or flocculating power, because of the greater simplicity and speed of the first method.

given by subcutaneous injection in eight doses over a period of six weeks. Two patients received only four, and two others received as many as twenty doses. The average initial titer of circulating staphylococcus antitoxin was around 8 antihemolytic units, whereas in a group of healthy persons of equivalent age the average titer would be around 20 or 30 antihemolytic units. All patients have now been free from boils for periods ranging at the time of writing from two to eight months, and their circulating antitoxin titer, although fallen from the maximum attained, is still, on an average, tenfold higher than it was initially.

There were six cases of a severe type of pustular acne with furunculosis in adolescents, all of at least two years' duration. The same statements apply as in the first group, in regard to the average amount of toxoid injected and the titers of circulating antitoxins present before and after treatment. All cases resulted in clinical cures.

One case of generalized acute bullous impetigo in a Negro, aged 36, with an initial antitoxin titer of 80 antihemolytic units, cleared up with surprising rapidity after five injections of staphylococcus toxoid (15 cc. in all) had raised his titer to 160 antihemolytic units.

Single cases of recurrent eczematization of skin, of severe pustular dermatitis, and of extensive abdominal cellulitis following laparotomy (all of staphylococcal origin) healed within so short a period after institution of the toxoid injections as to leave no reasonable doubt regarding the benefit they had received from this immunizing procedure.

In two cases of recurrent staphylococcal sinusitis, one of exceptional severity and long duration, the symptoms of infection were lost after the titer of circulating antitoxin had been much increased by a series of toxoid injections.

The following, more detailed, account of recurrent boils, with angioneurotic edema may perhaps be justifiably given.

A woman, aged 34, a high school gymnasium teacher, referred by Dr. E. J. Trow of Toronto and seen early in July, 1932, for about seven years had been subject to recurrent boils, which appeared chiefly in the winter months but were liable to follow overexertion in any season. She had "over 500 boils within three years of their onset, including thirty carbuncles having seven or eight outlets, and several finger infections requiring long incisions. Then gave up counting." Large, edematous swellings of the face and limbs, causing considerable local distortion and pain, were also liable to occur at times when a boil was developing there. She was quite incapacitated from her work on such occasions, and during the winter months a week rarely passed without at least one day's absence. She had tried countless previous remedies, including vaccines, without benefit resulting.

The initial antitoxin titer of her serum was between 12 and 16 antihemolytic units. Weekly injections of toxoid were instituted, and nineteen injections (totaling 105 cc. of toxoid) were received. The patient gave an unusually slow response to the antigen. Thus, although her titer of antitoxin rose to 60 antihemolytic units after four doses (0.55 cc.), it was still at the same level over three months later, at which time fifteen doses (6.3 cc.) of toxoid had been given. The 60 antihemolytic units in her serum allowed her to enjoy a far greater degree of freedom from infection than heretofore, but this amount was evidently not quite sufficient to afford complete immunity. Two modified infections occurred during these three months, one a whitlow, from which, on incision, a small bead of pus was obtained, yielding a pure culture of highly toxigenic *Staphylococcus aureus*, and the other a small boil on her chin.

However each of the last four doses given resulted in a considerable increment in the titer of circulating antitoxin, which jumped to 120, 140, 200 and 260 antihemolytic units successively, when estimated at weekly intervals. Since the time when the titer rose from 60 to 120 antihemolytic units (now over two months ago) the patient has been entirely free from staphylococcal infection. She has had none of the characteristic edematous swellings since the treatment began, and has this year also felt much better in general health.

The only further comment I wish to make regarding this case and applicable to several of the others treated, is that although "sensitization" to some product of the staphylococcus

would appear to have been present as well as susceptibility to infection by the coccus, the patient suffered no general or focal reactions of any sort throughout a long series of toxoid injections. My experience has been that although patients not uncommonly have, in fact, local pain, swelling and redness of the arm on the day following the injection, particularly after the first dose or two, the discomfort is never of serious magnitude and is usually negligible. Further, I have now given more than 500 subcutaneous injections of staphylococcus toxoid to human patients of all ages from 10 to 67, with not more than ten complaints of slight subsequent malaise and headache.

The results recorded would appear to indicate the ready amenability of certain types of staphylococcal infection to the specific treatment given. About thirty other cases of various kinds are under treatment, and it has been remarkable to note the beneficial effects following two or three injections of the toxoid in the majority of these. Cases of recurrent and persistent boils, in my experience, invariably respond to toxoid injections. Sixteen patients of this type have either remained free from recurrence for periods that are of long duration, when compared with their intervals of freedom from infection prior to immunization, or proved able rapidly to overcome a crop of boils that had long resisted various kinds of previous treatment, after two or three injections of the toxoid had been given. In other words, alleviation or disappearance of intractable infections of long duration occurred always too soon after a few subcutaneous injections of the toxoid had been given, to be attributed to the effects of favorable fortuitous circumstances, a conclusion that seemed to me partly to justify publication of this preliminary report.

Six patients with pustular acne and furunculosis quickly ceased to have further furuncles, and the pustular factor in their acne soon afterward became negligible. Among the remaining cases treated were a variety of less common types of staphylococcal infection, but the results obtained by immunization with the toxoid were always very favorable. While the number of cases of all types could have been multiplied manifold, treatment was, as a rule, confined to those I could myself conveniently control and observe, in order to insure prompt and accurate administration of the injections and faithful withdrawal of blood whenever required for antitoxin assay.

COMMENT

At the time of writing, rather less than a year has passed since the earliest of this series of patients began to receive injections of staphylococcus toxoid. Sufficient time has obviously not yet elapsed for any confident statement to be made regarding either the duration of the immunity they appear to have gained, or the nature of the future changes that may occur in their serum content of staphylococcus antitoxin. It is arguable that immunization with staphylococcus toxoid against localized staphylococcal infections is a procedure analogous to antidiphtheria prophylaxis by diphtheria toxoid injections. But one cannot presume that the analogy should be pressed so far as to cover the duration of the immunity conferred by these two measures. However, even if the immunization procedure described in this paper were efficacious only for the cure or prevention of an attack of boils in a susceptible person, staphylococcus toxoid would still be of therapeutic and prophylactic value. The deleterious effects of an attack of boils may be far more wide reaching than is generally imagined, and those who have suffered from such an

attack will acknowledge the serious degree of disability and disturbance of general health that may be occasioned. Boils should be regarded as potential sources of devastating, and maybe fatal, generalized infections, rather than as mere manifestations of parasitism on the part of an almost ubiquitous and comparatively inoffensive micro-organism.

A number of facts relevant to the problem of immunity and susceptibility to staphylococcic infection have come to light during the course of this investigation, but they may more appropriately be discussed at a later date, when a less provisional elucidation of them may be available. However, one or two general observations may perhaps be placed on record now. For instance, it is found that patients who have long suffered from the most common and indubitable form of staphylococcic infection, namely, boils, show no more and often less circulating antitoxin than do healthy persons of the same age. In other words, repeated superficial infections of this type give no antigenic stimulus capable of evoking antitoxin production, whereas, if the patient is given three or four small subcutaneous injections of staphylococcus toxoid over a period of two or three weeks, the titer of his circulating antitoxin will rise as a rule well above the titer encountered in healthy persons of the same age. By the end of this period, a considerable degree of clinical improvement will be evident and a further series of injections will result in apparent cure.

On the other hand, cases of recurrent staphylococcic infection involving deeper tissues, such as bone and muscle, show a greater amount of circulating antitoxin than is usually found in normal persons of similar age. Yet despite their more than average amount of circulating antitoxin, such persons remain subject to recurrences of staphylococcic infection. It is certainly possible to raise the serum antitoxin titer of such patients to a still higher figure by giving them a course of injections of staphylococcus toxoid. Among the patients now under treatment are included both children with recurrent migratory osteomyelitis and adults with a long history of repeated staphylococcic abscesses of bone and deep soft tissues. These have responded very well serologically to the antigenic stimuli that have been deliberately applied to them. For example, a man, aged 40, with recurrent staphylococcic abscesses for four years, increased his titer of circulating antitoxin from an already high value of 100 antihemolytic units to 3,000 antihemolytic units, after a total of 2 cc of toxoid had been injected subcutaneously over eight doses at intervals of five days. The future history of such patients will be followed with interest.

I do not suggest that there is a particular titer of circulating antitoxin above which all persons could safely be considered immune to any form of staphylococcic infection, for the staphylococcus is perhaps the most adaptable of all common pathogenic micro-organisms. But though it is able to multiply in vitro in concentrated horse serum of an antitoxic titer considerably higher than the maximum I have yet succeeded in provoking in any human patient, the clinical results appear to indicate that the staphylococcus is no longer able to maintain itself in human tissues when the antitoxin circulating in the blood is raised by the method described to a titer far higher than that initially present. In patients so immunized, it is possible that the leukocidal and necrotizing exotoxin is at once neutralized on liberation from the infecting staphylococci, permitting both the leukocytes to assert their natural

phagocytic function and also the tissues to undergo a reparative reversion to a gel state affording no pabulum for any surviving staphylococci.

A further analysis of the factors that probably operate for and against staphylococcic infection in human beings must be deferred to a later date.

SUMMARY

1 Staphylococcus strains isolated from infected human patients produce, under appropriate conditions, a true exotoxin having characteristic destructive effects on the cells and tissues of experimental animals.

2 Staphylo toxin can be rapidly detoxicated by the addition of 0.3 per cent solution of formaldehyde (U. S. P.), yielding a highly antigenic toxoid which may be safely injected subcutaneously into human patients.

3 A few small subcutaneous injections of staphylococcus toxoid given at intervals of from five to seven days will rapidly provoke an increased amount of circulating staphylococcus antitoxin both in experimental animals and in man.

4 The content of staphylococcus antitoxin in any serum may be easily estimated by titrating its antihemolytic power against a staphylo toxin of known hemolytic unitage, using as an indicator a 1 per cent suspension of "packed" rabbit erythrocytes in physiological solution of sodium chloride.

5 Twenty-eight patients suffering from intractable, persistent or recurrent staphylococcic infection, including sixteen severe cases of boils, received a series of injections of a toxoid prepared from several strains selected for their high toxigenicity. Alleviation, and then apparent cure, of their infections occurred soon after the commencement of the treatment in each case and could be correlated with an increased titer of circulating antitoxin.

SIMPLE TEST FOR PREGNANCY USING IMMATURE FEMALE ALBINO RATS

PREMATURE ESTABLISHMENT OF VAGINAL ORIFICE BY INTRAPERITONEAL INJECTIONS OF URINE OF PREGNANT WOMEN

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Certain rodents, notably the guinea-pig, the rat and the mouse, do not have patent vulvas until about the time of sexual maturity. It has been known for a long time that in the guinea-pig the vaginal orifice becomes closed after each heat period and remains so during the anestrus interval and throughout pregnancy as well. In the rat, the opening, once established about the time of sexual maturity, is a permanent one.

The histogenesis of the periodic opening and closing of the vaginal orifice in the guinea-pig was investigated by Papanicolaou and me¹. It was conclusively shown that the opening process is accomplished by increased vascularity and cornification. There is no vaginal closure membrane, but the dorsal and ventral vaginal lips are cicatrized together for an eighth of an inch or more. The process of scar formation in the

Contribution No. 9, series B, from the Department of Anatomy, University of Georgia Medical Department.
1. Kelly, G. L., and Papanicolaou, G. N. The Mechanism of the Periodical Opening and Closing of the Vaginal Orifice in the Guinea Pig, *Am. J. Anat.* 40: 387-411 (Nov.) 1927.

closure process is accompanied by the advent of myriad plasma cells and the formation of fibroblasts

The vaginal opening in the rodent at the first estrus (and subsequently at each heat period in the guinea-pig) is the result of the hyperplasia that is caused by the action of estrin, turned into the circulation by the ovaries

The basis of the experiments reported in this communication is the action of the anterior pituitary

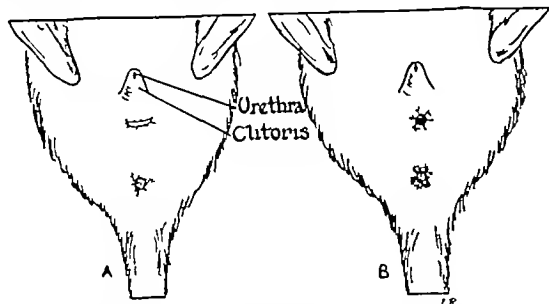


Fig 1—A, site of future vaginal orifice in immature female rat (closed vagina) B, vaginal orifice established

hormone on the immature ovary, as shown by Aschheim and Zondek² and by Smith and Engle³. Since the urine of pregnant women contains a sufficient quantity of a substance that has an action similar to that of anterior pituitary transplants on the ovary, the injection of such urine should cause the stimulated ovaries to produce a precocious estrus

Guinea-pigs, albino rats and albino mice were considered as being possibly suited for the test. The guinea-pig has a cycle more than twice as long as that of the rat or the mouse and its ovary does not respond so quickly to anterior pituitary stimulation, as is shown by Papanicolaou⁴. We found this animal unsuitable for the purpose.

White mice cannot accommodate sufficiently large injections, and the organs are too small for satisfactory observation, so they were likewise considered unsatisfactory

Female albino rats of a certain size are excellent material for this reaction. They are easy to handle, can accommodate large injections of urine intraperitoneally without mishap, and are easy to observe (fig 1)

The site of the vaginal orifice in the immature rat is a slightly crescentic white cicatrix just behind the clitoris (which in all the rodents mentioned herein is traversed by the urethra, as the penis is in the male). At the first opening a small amount of fluid exudes from the opening, which now assumes a round shape. Just before the opening a few strands of epithelial tissue can be seen still holding the lips together. In some cases the escaped fluid dries in such a way as to obscure the fact that the vagina has opened. On examination, if there is not a distinctly closed vaginal site or a patent opening, the animal may be grasped by the neck and shoulder region (not around the abdomen) with one hand and the base of the tail pulled stoutly with the forefinger and thumb of the other hand (fig 2). If the vagina is open, this maneuver will round the orifice out so that the lumen can be seen

MATERIAL AND METHOD

Albino rats raised in our own laboratory were used as long as they lasted. The ages of these were known. When they were used up, rats of definite weights were ordered from a supply house. These orders were rather unusual, and the rats, when delivered, always weighed a few grams more than specified. A demand for such animals in numbers, however, would remedy this inconvenience.

A fine hypodermic needle was used in making the injections. Without removing hair from the abdomen, an area near its center was wet with a swab of tincture of iodine, and after the needle was inserted it was held in such a way as to lie parallel with the abdominal wall (against its inner surface). It is necessary to have an assistant hold the animal firmly by the fore and hind legs.

The urine is kept in refrigeration before injection but is warmed to 40°C just before injection. The temperature of the urine by the time of injection will of course be slightly less than body temperature, the principal purpose being not to introduce ice-cold urine into the peritoneal cavity.

It seems remarkable that an animal weighing only 25 Gm can accommodate an intraperitoneal injection of 5 cc without harm, but it is nevertheless true.

Merely as a trial to see what would happen, two 30-day old rats were injected as follows with urine from a woman known to be pregnant: January 5, afternoon, 5 cc; January 6, afternoon, 5 cc; January 7, forenoon, 5 cc. The vaginas were still closed, January 7, and were not observed again until the afternoon of January 8, at which time both were completely open. Vaginal smears taken at this time were of the estrous type, one having a few proestrous cells as well. The number of hours elapsing from the first injection until the opening could not be determined because the animals were not observed the night of the 7th or the morning of the 8th. The time from the first injection until the observation of the opening was about seventy-two hours.

January 9, between 4:30 and 5 p.m., six female albino rats, aged from 30 to 35 days, were injected with 5 cc of urine from a woman known

to be gravid. At the same time, six rats of the same age were injected with the urine of a woman known not to be pregnant. (The latter urine was obtained from women in the child-bearing age.) The injections were repeated as follows: January 10, between 9 and 9:30 a.m.; January 10, between 4:30 and 5 p.m.; January 11, between 9:30 and 10 a.m. Six of the twelve animals were considerably smaller than the other six.

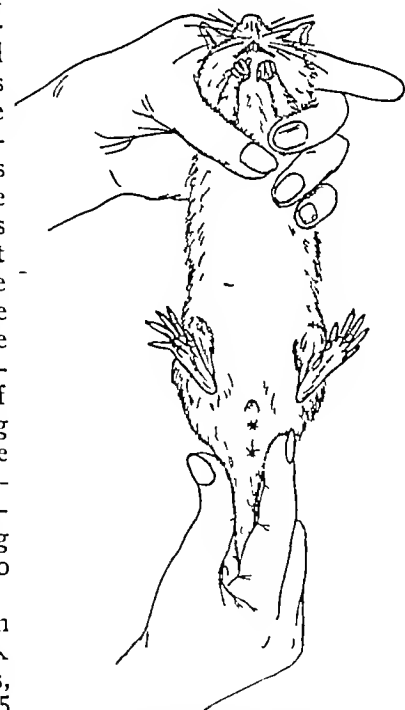


Fig 2—Method of holding rat in order to hollow out the vaginal lumen when opening has taken place

² Zondek, Bernhard and Aschheim, Selmar. Hypophysenvorderlappen und Ovarium. Beziehungen der endokrinen Drüsen zur Ovarialfunktion, Arch. f. Gynak. 130: 1-45, 1927.

³ Smith, P. E. and Engle, E. T. Experimental Evidence Regarding the Role of Anterior Pituitary in Development and Regulation of the Genital System. Am. J. Anat. 40: 159-217 (Nov.) 1927.

⁴ Papanicolaou, G. N. Specificity of Reactions Produced by Injection of Urine from Pregnant Cows into Immature Female Guinea Pigs. Proc. Soc. Exptl. Biol. & Med. 25: 807-810 (May) 1931.

Three each of the larger and of the smaller were used as test animals and three of each size as controls. On the fourth injection, urine from a different pregnant woman was injected into the test animals, the specimen used for the first injections having been used up. The three smallest test animals (weighing about 25 Gm each) died shortly after the fourth injection, with signs of anaphylaxis. These were the only animals lost throughout the experiments. In no other cases were more than three injections given, and in many only two were given.

It is notable, as shown later, that in two test animals a single injection of 5 cc produced openings in less time than plural injections in other animals. Whether a single injection of 5 cc is as efficacious as plural injections remains to be determined. In view of the failure of very large injections of urine into rabbits to hasten ovulation in the Friedman test, the presumption is that a single injection of 5 cc would be sufficient.

TABLE 1—Record of Immature Female Albino Rats Injected Intraperitoneally with Urine from Pregnant Women

Animal	Age or Weight	Injections		Opening in Hours
		Number	Amount	
1T	30 days	3	5 cc	<72
2T	30 days	3	5 cc	<72
3T	30 35 days	4	5 cc	<64
4T	30 35 days	4	5 cc	<64
5T	30 35 days	4	5 cc	<64
6T	16 days	2	3 cc	<20
7T*	30 days			
	25 Gm			
8T*	25 Gm			
9T*	25 Gm			
10T	30 35 days	1	5 cc	<40
11T	30 35 days	1	5 cc	<64
12T	35 5 Gm	3	5 cc	71-83
13T	48 Gm	3	5 cc	71-83
14T	39 5 Gm	3	5 cc	71-83
15T	36 5 Gm	3	5 cc	71-83
16T	44 5 Gm	3	5 cc	71-83
17T	32 5 Gm	3	5 cc	71-83
18T	34 Gm	3	5 cc	71-83
19T	33 Gm	3	5 cc	71-83
20T	35 5 Gm	3	5 cc	71-83
21T	37 5 Gm	3	5 cc	71-83
22T	33 Gm	3	5 cc	71-83

* Died after fourth injection of 5 cc, the uterus showed definite estrous distention.

In the three animals that died, postmortem examinations revealed typical heat distentions of the uterus. The ovaries were enlarged and contained many follicles. Vaginal smears showed principally proestrous and estrous cells, with a few leukocytes in one specimen.

January 12 in the forenoon, the vaginas of the three living test animals were all open and those of the six control animals all remained definitely closed.

It had been considered possible that the vaginal smear would be of more value than the establishment of the vaginal orifice, but this was not found to be so. There may be sufficient estrin in the quantity of nonpregnant urine injected to initiate changes in the vaginal epithelium directly, but it is probable that the proestrous smears in the control animals is an expression of cyclic ovarian action that is too weak to produce a frank estrus. There is not sufficient estrin in the quantity of urine injected into controls to bring about a frank precocious estrus with cornification and establishment of the vaginal orifice.

Papanicolaou and Blau⁵ demonstrated that the bitch is really polyestrous and has a rhythm of 15-62 days,

which is more strongly expressed every other. This cycle is one fourth of the gestation period—sixty-three days. They were able to intensify the expressions into definite estrus by means of injection of estrin and to bring bitches back into heat shortly after a regular estrous period.

Smears from the test animals will at some time around the opening give purely estrous cells as seen in the copulatory stage. On forcibly opening the vagina of the control animals a majority of proestrous smears were obtained, none showing a majority of estrous cells.

In order to test the effect of one 5 cc injection of urine from a pregnant source, two rats, aged from 10 to 35 days, were given this amount at 5 p. m., January 10. The vagina of one was open at 3:30 p. m., January 12, forty-six hours after treatment. The vagina of the other was found open, January 13, 9 a. m., having probably opened during the night. The gross elapsed time was sixty-four hours.

Three females from a litter of six 16-day old females were available from our own colony. The vagina of one of these was forcibly opened and a smear was made. A few non-nucleated (estrous) and some nucleated (proestrous) cells were found, but no leukocytes. This corroborated the uselessness of depending on smears for this animal was so small it had not long been covered with hair. Other older female albino rats were found to have proestrous smears after no injections whatever.

Of the remaining two small 16-day old females, one was given 3 cc of urine from a pregnant woman intraperitoneally on two consecutive days and the vagina opened within ninety-six hours, though the exact time was not determined. The vagina of the littermate control, which received the same amount of urine from a nonpregnant woman, failed to open.

Two groups of eleven rats each were next injected with urine from pregnant and nonpregnant sources respectively, each animal receiving 5 cc as follows: January 18, between 10 and 10:30 a. m., and between 8:30 and 9 p. m., January 19, between 9:30 and 10 a. m. The vaginas of all the test animals were found open in from seventy-one to eighty-three hours. None of the vaginas of the control animals opened.

These animals had been ordered from a dealer to be delivered weighing from 20 to 30 Gm. At the completion of the tests, the actual weights varied from 29 to 48 Gm, the average weight being 35.7 Gm. The weights on arrival were probably 2 or 3 Gm less.

In their monograph on the estrous cycle of the albino rat, Long and Evans⁶ state that the average age of an animal at the establishment of the vaginal orifice is 76.5 days. In a group of 200 rats, the low and high limits were 34 and 109 days. The average weight of the animal at the time of the vaginal opening is 35 Gm. This may be of equal importance.

We found that to a large extent the number of animals in a litter determined the weight at a certain age. For example, rats in two litters of ten and nine weighed about 25 Gm each at 30 days, while rats in two litters of two and one weighed about 45 Gm at the same age.

It was also observed that the older and larger the rat, the shorter was the time required for the opening of the vagina. In order to take advantage of the

⁵ Papanicolaou, G. N., and Blau, N. F. Existence of Sexual Rhythm and Experimental Induction of Heat in the Dog During Anestrus, *Anat. Rec.* 25: 47 (March 25) 1927.

⁶ Long, J. A., and Evans, H. M. The Estrous Cycle in the Rat and Its Associated Phenomena, *Memoirs of the University of California*, number 6, 1922.

of rats as large as possible (without danger of natural establishment of the vaginal orifice), two groups of animals were ordered as follows: one dozen between 30 and 40 Gm, and one dozen between 40 and 50 Gm. The actual weights on arrival were between 38 and 49.5 Gm for the first group and between 50 and 57.5 Gm for the second.

Of the first group, two animals had maturely opened vaginas. One weighed 42.5 Gm and the other 49.5

TABLE 2—Record of Older Immature Female Albino Rats Given Two Intraperitoneal Injections of 7.5 Cc of Urine from Pregnant Women

Animal	Weight Gm	Opening In Hours	Animal	Weight Gm	Opening In Hours
23T	62	<21	32T	57	<63
24T	64	<32	33T	51.5	<63
25T	63.5	<32	34T	65	<63
26T	60	<32	35T	50	<72
27T	60.5	<32	36T	61	<72
28T	52	<45	37T	46.5	<72
29T	53.5	<45	38T	40	<75
30T	53.8	<65½	39T	59	<75
31T	53.5	<65½	40T	53	<75½

Gm. Of the second group four had open vaginas and weighed respectively 51, 53, 54.5 and 56 Gm. All of these animals were discarded.

In order to determine the opening times of animals of this size, the eighteen remaining animals were injected with 7.5 cc of pregnancy urine at 12 noon and 6 p. m., January 27. All the openings occurred in from twenty-one to seventy-five and one-half hours, as shown in table 2.

Undoubtedly, the animals with openings in less than forty-five hours were getting ready to open naturally. The remainder, no doubt, were opened prematurely by the injections. It is quite evident that if the former are disregarded, the average opening time of the latter is less than that of the younger animals, previously reported. Apparently, the more nearly mature the ovary, the quicker its response to the anterior pituitary-like element in the urine.

Since the amount of estrin excreted in the urine of pregnant women is said to be greater after the third or fourth month than before, it might be a direct aid to the anterior pituitary-like substance in establishment of the vaginal opening, though doubtless no such aid is required. In view of the fact that the opening is brought about by the increased production of estrin in the stimulated ovary, it is not worth while to remove the estrin from the specimen to be tested. If an ovarian cyst were suspected, this would possibly be necessary, since the amount of estrin in the urine might be thus greatly increased.

It is obvious that animals weighing not more than 40 Gm should be used for the test and animals weighing between 30 and 40 Gm are suggested as most suitable. If animals of known ages could be purchased from reliable dealers, it is probable that even heavier ones could be used with safety, possibly up to 50 Gm. Of course, the animals should be closely scrutinized before injection to make sure that the vaginas are of the immature closed type. Cystic ovarian disease in young rats might account for the very early openings in Long and Evans's series, though it is more likely that such specimens were from very small litters and weighed more than the average animal of their age. Such animals naturally should be discarded.

The urine should be given in two 5 cc injections, one in the morning and one in the afternoon of the same day. The urine should be from the specimen first passed on arising.

It is advisable that two rats be used for each test, requiring that both vaginas open within ninety-six hours as a positive test. As a rule, the opening will occur between seventy-two and eighty-four hours. This means that if the injections are made on the morning of a certain day the result of the test can be read following. This is longer than is required for the Friedman test, which on an average is about forty-eight hours, and is shorter than required for the Zondek-Ashheim test, which takes four or five days.

The results of all the injections are summarized in the tables. The vaginal orifice was established without exception in the animals that received the pregnancy urine and in no case was it established in an animal that received nonpregnancy urine.

The advantages of this method are obvious: the ease of intraperitoneal injection, the convenient size of the animals used, the economy in raising or purchasing test animals and the facility of observing the result of the test without killing or operating on them.

SUMMARY

1 Intraperitoneal injections of from 5 to 15 cc of urine from pregnant women will cause premature establishment of the vaginal orifice in the albino rat weighing from 30 to 40 Gm, usually within from seventy-two to eighty-four hours.

2 Intraperitoneal injections of the same amount of urine from nonpregnant women will not cause such premature opening of the vagina.

TABLE 3—Record of Immature Female Albino Rats Injected Intraperitoneally with Urine from Nonpregnant Women in Which Vagina Remained Closed

Animal	Age or Weight	Injections	
		Number	Amount
10	30-35 days	4	5 cc
20	30-35 days	4	5 cc
30	30-35 days	4	5 cc
40	30-35 days	4	5 cc
50	30-35 days	4	5 cc
60	30-35 days	4	5 cc
70	16 days	2	3 cc
80	29 Gm	3	5 cc
90	32 Gm	3	5 cc
100	34 Gm	3	5 cc
110	35 Gm	3	5 cc
120	35.5 Gm	3	5 cc
130	32 Gm	3	5 cc
140	30.5 Gm	3	5 cc
150	43.5 Gm	3	5 cc
160	38 Gm	3	5 cc
170	35 Gm	3	5 cc
180	31.5 Gm	3	5 cc

3 Two animals should be used and the opening of the vaginas of both is read as positive, of one, as doubtful (the test should be repeated), of neither within ninety-six hours, as negative.

4 If the vagina is open and the orifice obscure, one may see it by holding the animal by the neck and shoulder region and pulling strongly on the base of the tail. In this maneuver the abdomen should not be compressed.

5 The main advantages are the simplicity of the test and the ease of reading the result.

THE SUSCEPTIBILITY OF HEMOLYTIC
STAPHYLOCOCCI TO BACTERIOPHAGE

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AND

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A portion of the problems that we are investigating have, because of their nature, led to a study of several polyvalent staphylococcus bacteriophages obtained from various sources. The recent report of Straub and Applebaum¹ on commercial bacteriophage products confirms our earlier studies.²

During the past two years we have tested polyvalent staphylococcus bacteriophages on 121 strains of staphylococci isolated from individuals with carbuncles, furuncles, sinusitis, osteomyelitis and staphylococcus septicemia. Seven of these strains of staphylococci, all nonhemolytic, are not susceptible to any of the phages we have used against them. These strains of bacteria were isolated from long-standing cases of furunculosis (one), sinusitis (four) and osteomyelitis (two). All these organisms grow very well on plain Savita medium and multiply as rapidly at 20 C as they do at 35 C.

Seventy-one of the strains produced strong hemolysis of rabbit, guinea-pig or human blood when they were cultivated on Savita agar to which 4 per cent blood had been added. With one exception all these cultures of hemolytic staphylococci (*albus* and *aureus*) were found to be susceptible to polyvalent staphylococcus bacteriophages on the first contact. The one resistant culture was isolated from an abscess in a patient who was being treated for diabetes. This culture developed colonies on rabbit blood agar which were very similar to those produced by a typical pneumococcus type II, both in size and in degree of hemolysis. However, when a portion of a colony or a loop of a fresh broth culture was stained in the usual manner, the microscopic picture was that of a staphylococcus.

The remaining twenty-one strains were nonhemolytic and were also susceptible to bacteriophagy, but in several instances it was necessary to make repeated contacts with bacteriophage before complete lysis was effected.

In 1926, Epstein and Feigin³ reported that, in a routine examination of staphylococcus cultures, all of the hemolytic strains (thirty-one) were resistant to bacteriophagy and that there was a definite relation between the amount of hemolysis produced and the resistance to lysis by bacteriophage. They employed horse blood agar. All their nonhemolytic staphylococci (ninety-one cultures) were phage susceptible. In 1930, McKinley and Cámara⁴ reported that seven strains of hemolytic staphylococci resisted the action of polyvalent staphylococcus bacteriophage supplied by Dr. Larkum. They agreed with Epstein and Feigin that hemolytic staphylococci were resistant to bacteriophagy.

The results that we obtained with our phages were so different from those reported by the investigators mentioned previously that we procured some horse blood and tested many of our susceptible hemolytic strains of staphylococci on a medium containing 4 per cent of horse blood. All of the twenty strains that were tested were found to be hemolytic on this medium as well as on rabbit blood agar. Furthermore, the cultures from the horse blood medium were as susceptible to our phages as they had been from other mediums.

We have recently obtained a sample of polyvalent staphylococcus bacteriophage from Dr. Larkum and find that it is able to lyse all of the hemolytic cultures of staphylococci against which it was tested (twenty-four).

It is well known that most cases of acute infection with the staphylococcus are caused by the hemolytic strains. It has also been stated⁵ that chances of success with phage therapy are much better in cases of acute infection than in cases of long-standing chronic infection. The susceptibility of hemolytic staphylococci to bacteriophage supports this statement. We have also isolated nine strains of hemolytic *Bacillus coli* and have found that these strains also are strongly attacked by coli bacteriophages.

CONCLUSIONS

1 Hemolytic staphylococci are particularly susceptible to bacteriophagy.

2 Resistant strains of staphylococci are generally of the nonhemolytic type.

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PELLEGRINI-STIEDA'S DISEASE

A REPORT OF ONE CASE SURGICALLY TREATED

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Pellegrini-Stieda's disease is characterized by a semilunar-like bony formation in the region of the internal condyle of the femur and is always traumatic in origin. The condition has been and is being reported in the foreign literature. This is the first case to be described in the English literature. My object is to report one surgically treated case in detail and to discuss briefly the condition in general.

Pellegrini in 1905 called attention to a traumatic ossification of the collateral tibial ligament of the knee. The same year, Kohler reported a similar case and in 1907 Stieda, unaware of the previous work, again called attention to a semilunar-shaped calcification seen about the superior border of the internal epicondyle of the femur. Pellegrini thought that the disease was traumatic. Stieda believed it was due to a fracture with a detachment of a small particle of bone at the moment of injury, with subsequent calcification taking place in the ligament. König, Kohler, Pfister and Ewald were definitely of the opinion that the calcification was a fractureless callous formation and that it was the end result of periosteal proliferation, secondary to a tear of the ligaments and tendons at that point. They support their contention with the fact that the process never appears within less than two or three weeks following the injury. Most observers feel that it can be caused

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by either direct or indirect trauma. There is still some controversy over the origin of this formation, some believing that it is of periostitic origin, others that it arises from the surrounding connective tissues. I believe that the condition is similar to myositis ossificans. More than 136 cases have been reported in Germany and Italy. It is chiefly unilateral. The clinical course varies considerably in severity, sometimes resulting in permanent disability.

Clinically, the cases run a similar course in that the patient gives a history of a fairly slight trauma and, if roentgenograms are made immediately following the trauma, there is no evidence of dislocation or fracture. However, if the symptoms fail to subside and the patient is examined at the end of about two weeks, there will be found a typical semilunar-shaped calcification. This shadow is usually crescent shaped, though it may be somewhat fusiform or elongated or triangular. The lesion may heal spontaneously. Some believe there is no need for operative intervention, as the condition has a tendency to recur.

REPORT OF CASE

History—G. B., a white man, aged 29, seen in the outpatient clinic, Sept. 2, 1932, complained of pain and disability in the left knee of three months duration. The onset of symptoms followed a traumatic incident during a ball game in which he participated. Another player collided with the patient and struck him tangentially on the left knee. This mechanism of injury usually causes some internal derangement of the knee. There were no immediate symptoms, and he continued his game.

That night he experienced definite pain over the medial side of the left knee. This was rather sharp and aching in character and was progressive. Weight bearing aggravated the discomfort and occasionally enforced bed rest. Weather changes had no influence on the course of the disability. Occasionally a moderate redness appeared about the region of the internal condyle suggesting inflammation, although he does not think that he ever had definite fever or chills. There had never been any "locking," "slipping" or "giving way" of the knee joint. There had lately developed some limitation of the joint range of motion. A sense of swelling and induration had persisted for the past several months over the medial femoral condyle. He had lost 15 pounds (6.8 Kg.) since his injury but had no subjective general bodily complaints or other joint symptoms. He had had no treatment for the local disability except for several enforced periods of rest due to the local disability.

The functional, past and family histories were essentially negative.

Examination—The patient was well developed and well nourished and apparently not acutely ill. The systemic examination showed nothing remarkable.

He walked unsupported but with a left-sided limp. The left knee was five-eighths inch greater in circumference than the right, but the left thigh also exhibited $1\frac{1}{4}$ inches atrophy and the left calf three-eighths inch. The range of motion of the left knee was from 175 degrees of extension to 80 degrees of flexion. Beyond this range passive attempts at further motion caused some pain in the joint.

A circumscribed tumor-like swelling was noted and could be palpated over the internal condyle of the left femur, which was tender to pressure. This was rather hard and apparently was firmly attached to the deep structures in this region. The skin over this infiltration was slightly discolored but freely movable. Abduction of the leg caused some discomfort in the region of the internal lateral ligament. There were no other evidences of internal derangement of the knee.

Roentgenograms (in the anteroposterior view) showed the typical semilunar-like bony formation about the medial condyle. The bony outlines of the lower end of the femur were clearly defined and a clear space was present between the mass and the periosteum of the femur. The bony formation was not of

uniform consistency but was somewhat variegated in structure. Its margins were indistinct and irregularly outlined. Its lower limit might well have involved the upper attachment of the medial lateral ligament. No definite bony trabeculation could be made out within the ossification. No other visible changes were noted (fig. 1).

Laboratory examinations revealed urine, normal, Wassermann reaction, negative, coagulation time, four minutes, hemoglobin, 75 per cent (Tallqvist), red blood count, 3,830,000, white blood count, 10,000.

The patient received a brief period of treatment with diathermy, massage and an elastic bandage but with no local improvement. Operation was finally indicated because of the long duration of the condition and the apparently fully developed character of the bony formation.

Operation—September 8, under ethylene gas anesthesia and with a thigh tourniquet, a slightly curved incision was made over the palpable mass in the region of the medial condyle of the left knee. The dissection was carefully continued through the tendinous structures down to the bony mass, which measured about 4 cm. in length and 1 cm. in diameter. This formation infiltrated the tendons of the adductor magnus and vastus medialis but was nevertheless clearly defined. It was intimately related to the internal lateral ligament but did not actually involve it. It was not united to the bone or periosteum of the condyle and could be dissected and shelled out, although



Fig. 1—Preoperative anteroposterior view of the knees showing the more or less typical semilunar-like bony formation in the region of the internal condyle of the left femur.

no definite capsule was present, without injury to important structures. The wound was closed in layers, with interrupted sutures, fine chromic for the deep structures, fine catgut for the subcutaneous tissues, and dermal for the skin. A dressing and long leg cast were then applied. The entire bony mass was fixed and decalcified, and serial histologic studies were made.

Postoperative Observations—At the time of this writing, the patient has been observed about four months.

For several days after the operation, he had a slightly elevated temperature but was comfortable. The wound healed in about ten days, and the cast was removed. Physical therapy was instituted, and he was allowed gradual supported weight bearing. He was discharged from the hospital, September 17, and was instructed in home physical therapy. The postoperative roentgen examination demonstrated the complete removal of the bony formation. Unfortunately, this film has been lost, and no illustration could be made of it.

October 6, the patient was allowed to begin full weight bearing unsupported. The range of motion was then from full extension to 90 degrees of flexion. The patient was symptom free and well satisfied with the result of operation (fig. 2).

December 2, he walked without any support but with a slight symptomless limp. The region of the medial condyle is slightly enlarged and demonstrates an apparent valgus of the knee (fig. 2). There is no tenderness over this region, and the knee is stable. The range of motion is from full extension to 100 degrees of flexion. Serial roentgen examinations show

the progressive recurrence of the bony formation. It is now more extensive than the original but not nearly so dense or well defined (fig 3).

Histologic Description of the Bony Mass Removed at Operation (by Dr Ernest Freund)—The bony mass consisted of a rather dense irregularly distributed substantia spongiosa with the marrow spaces filled by fibrous tissue. This fibrous tissue was rich in large thin walled vessels. The marrow spaces were much larger in the central part of the mass, which was certainly the older portion, in which the spongy bone had undergone changes, resulting in its reduced density. The fibrous tissue itself was rather loose and contained a few fibers, between which were spindle-shaped and astriform cells, and in some places small groups of lymphocytes. The older central portion exhibited an even looser fibrous marrow, in which here and there appeared small groups of fat cells, showing that the fibrous bony marrow had been reconquered by the fatty marrow, a fact well illustrated in fractures in which bony trabeculae with fatty marrow eventually appear in the fibrous callus.

Because the growth of the mass occurred naturally on its free peripheral surface, this region offered an opportunity to observe different kinds of bony growth. Inspection of this border revealed three definite types of bone growth: primitive infiltrative bone growth on the basis of connective tissue, bone formation which was callus-like in character, and endochondral formation of bone.

The infiltrative type was the most common to be observed and occurred on the border between the bony mass and the tendon-like, tough connective tissue. Here the connective tissue was infiltrated in a very irregular manner by clear red homogeneous substance. In this were deposited lime salts as it approached the bony border. This was a primitive type of ossification on the basis of connective tissue (fig 4). In the first state, osteoid tissue is formed which is transformed to real bone by the deposition of lime salts. Owing to the gradual zone of bone transformation, the actual borderline of the bony portion was not clearly depicted in these actively engaged situations. There was a gradual continuous passage, from bone into connective tissue, and even more strikingly did the connective tissue fibers merge into the bone tissue, thus forming the so-called fibers of Sharpey.

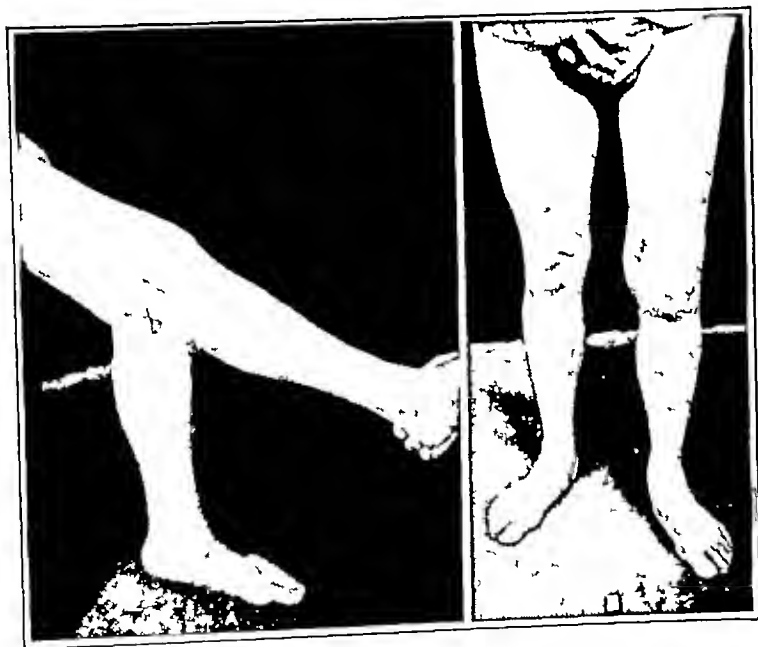


Fig 2—A, range of motion about one month after operation, B, appearance of knee about three months after operation

The second type of ossification to be observed was quite callus-like in character (fig 5). At one end of the mass was an extensive area of young hyaline cartilage with very large spherical cells and very little ground substance between them. In some spots this cartilage tissue showed a structural continuity with primitive osteoid bone tissue, which soon became calcified and underwent changes by resorption and new formation. This passage from one tissue into another must not,

however, be interpreted as a direct metaplasia from cartilage to bone. Based on V Ebner's explanation, it is known that this is not a genetic continuity but merely a local continuity in which both bone and cartilage tissues are formed at one time from a common basis of connective tissue.

The third, less important, type of bone formation was the endochondral variety of cartilage ossification. It was a rather primitive type, without the formation of a proliferation zone of

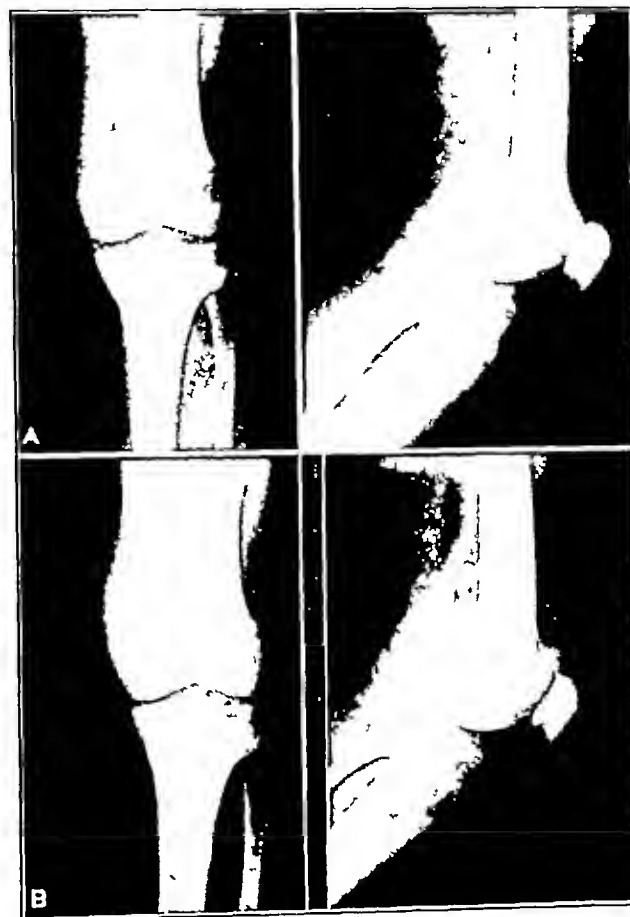


Fig 3—Appearance of left knee A, about one month after operation, B, about three months after operation

cartilage cells. Instead, there was a very primitive discontinuous zone of preparatory calcification. After the intrusion of the cartilage by small vessel sinuses, there was a resorption of the calcified cartilage. On the surface of the remaining cartilage there was then apposition of bone tissue by osteoblasts. The resulting spongy bone showed numerous inclusions of calcified cartilage tissue in the center of the trabeculae. However, in many other situations thick bony trabeculae in the central part of the bony mass showed quite frequently inclusions of primitive bone tissue of a more bluish stain, which contrasted quite markedly with the newly opposed mature lamellar bone, which stained red. The two types of bone were separated by a dark blue lacunar cement line. This picture was produced by repeated processes of resorption of primitive bone by osteoclasts and apposition of mature lamellar bone before the former process was completed.

Because of the exposed situation of this newly formed bony mass, some signs of traumatization might be expected. This was particularly demonstrated at a point at which a bony spur had been formed. Its point was fractured, and the fissure was partially filled with a network of coagulated fibrin. The contiguous thick spongy trabeculae were necrotic and were undergoing an active lacunar resorption from the intact fibrous marrow.

COMMENT AND SUMMARY

In the case of Pellegrini-Stieda's disease reported, the bony formation recurred following operation. This recurrence may have been facilitated by an inadequate period of postoperative immobilization and by

the trauma incident to the operative intervention in tissues already sensitized to the production of bone. From the literature, good results are reported both from conservative and from surgical measures. After four months the patient is symptom free and active in spite of the recurrence of the mass. It is reasonable to assume that no surgical procedure should be instituted before the bony mass has matured, just as in myositis ossificans.

There can hardly be a doubt as to the traumatic origin of the bony mass in this instance. A strain or a partial tear of the internal lateral ligament of the involved knee and its associated tendinous structures, such as the semimembranosus and the vastus medialis, might well have been the primary factor in producing the subsequent bony formation.

This bony formation is essentially very similar to myositis ossificans. It is now quite generally accepted that myositis ossificans is neither a tumor nor an inflammatory process but a so-called metaplastic hyperplasia metatlasia in the sense of indirect transformation of one tissue into another. In this specimen, bony tissue predominates whereas there is generally found in myositis ossificans an equal amount of bone and cartilage. This is due to the fact that this case was of long duration, thus giving sufficient opportunity for a high degree of tissue differentiation. Bony predominance may also have been due to the localization of the process. In this case the bony formation—to judge from the roentgenograms and from the appearance at operation—was clearly para-osteal. It is therefore assumed that this metaplasia occurred only from the tendinous, the ligamentous and possibly even the fascial structures in this region. Such tough fibrous structures are not as conducive to cartilage formation as are the more loose connective tissues of the perimesum and the interstitial septums of musculature, which is the usual situation of myositis ossificans.

nective tissue is able to form bone under certain conditions. The nearer to the bone these tissues are, the more likely are they to lead to such a formation. This is demonstrated in the healing of fractures in which the para-osteal bone production in the interstitial septums and thin muscular fascias is quite considerable, particularly in old people, in whom this type of bone formation is even more important than the periosteal callous formation. This has been clearly demonstrated



Fig 5—Part of the periphery of the bone mass showing the bone growth on the basis of fibrous tissue and the callus-like formation of cartilaginous and bone tissue.

by Freund, who has shown that in fracture of the neck of the femur, endosteal and para-osteal bone productions prevail over periosteal bone production.

These facts are further substantiated by the apparent para-osteal bone formation as seen in the recurrence of the growth. The periosteum was not disturbed during the operation. Immobilization of the limb may lead to the disappearance of the mass, which occurs so frequently in myositis ossificans.

The condition is important from its medicolegal aspect, as all the cases reported have been in adults who sustained their injuries while at work. Because of the tendency to heal (?), hasty judgment should be avoided. Immediate post-traumatic as well as follow-up roentgenograms are essential to establish the diagnosis and prognosis.

In considering the clinical differential diagnosis, practically all of the numerous causes of internal derangement of the knee must be ruled out. Such conditions as total or partial fractures of the medial femoral condyle (rare), and para-osteal arthropathies in paraplegic cases may produce roentgenograms similar to Pellegrini-Stieda's disease.

The treatment of this condition, as advocated in the literature, is the conservative and the operative.

The use of x-rays has been recommended, but sufficient experience is lacking to permit a true evaluation of this therapeutic measure. Diathermy and baking are said to be excellent early measures. Later, to diathermy may be added infra-red and electrical therapy. When the condition goes on to mature bony formation with persistent disability, it is apparent that surgical removal is indicated. This should be accomplished with a minimum amount of operative trauma and should be followed by a carefully observed period of immobilization and physical therapy.

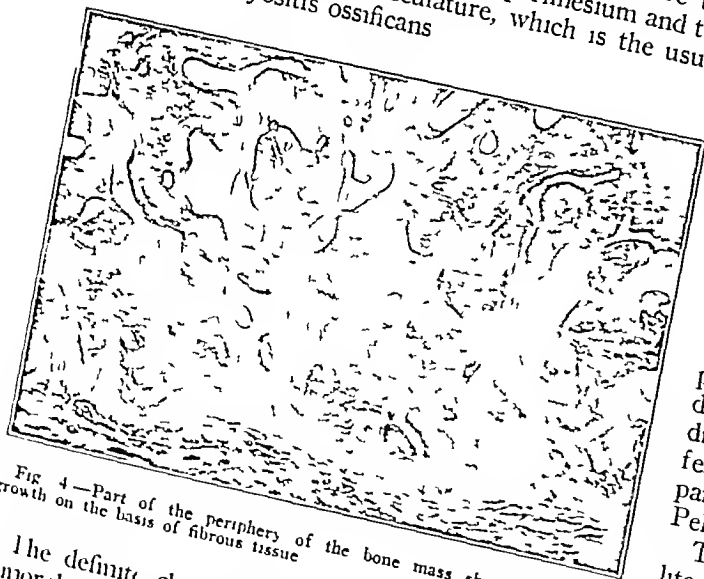


Fig 4—Part of the periphery of the bone mass showing the bone growth on the basis of fibrous tissue.

The definite clear space between the mass and the femoral margin clearly demonstrates that for the bone formation in Pellegrini-Stieda's disease as in all other kinds of para-osteal bone formation—particularly myositis ossificans—there is no need for periosteal participation. None of the conceptions based on tears and dislocations of periosteal tissues into the neighboring tissues as the causes for such para-osteal bony formations are tenable. It is well known that every con-

THE SURFACE TEMPERATURE AND THE MINUTE BLOOD VESSELS OF THE SKIN IN ARTHRITIS

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It is well known that there are two points of view in regard to the etiology of arthritis. One is that the bacteriologic focal infections are believed to be the usual source of the noxious bacteria, the chief exponents of this idea are American workers. The other point of view is based partly on the hereditary and constitutional makeup of the individual and partly on the nervous, gastro-intestinal, endocrine and circulatory disturbances developed during the lifetime of the patient. This theory explaining the etiology of arthritis is predominantly subscribed to in Europe.

In September, 1930 at the congress in Liege the council of the Ligue internationale contre le rhumatisme

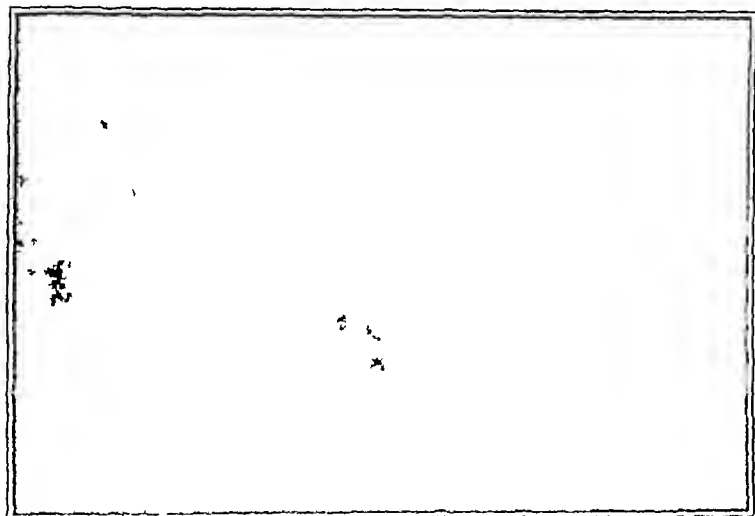


Fig 1.—Capillaries of the finger nail fold of a patient aged 38 with osteo arthritis. From an untouched photomicrograph, enlarged from a 35 mm film with a magnification of 176 diameters.

emphasized the importance of circulatory disturbance in cases of rheumatic disease and subscribed to the theory that this is one of the essential factors in the causation and continuance of rheumatic conditions. (It was recorded as the official subject and recommended for further investigation at the congress at Liege in 1930). Until that time very little research work had been carried out in this field.

Only lately, inspired by the work of Lewis, Krogh and Ebbecke on the blood vessels of the human skin and aided by the perfection of the capillary microscope and the thermo-electrical method of measuring skin temperature, has the study of the circulation in the skin of arthritic patients attracted much attention.

Wright and Pemberton¹ state that the surface temperature was below normal in 62 per cent of arthritic subjects, measured on the base of the finger nail. They

stated that the capillary field in arthritic patients usually contained less blood and was lighter in color than in normal persons. These changes, they believe, may be due to the fact that there are fewer open capillaries or that the individual capillaries are smaller. They found that the blood flow under identical conditions was slower and more frequently interrupted in arthritic subjects than in normal persons.

Rhumann² reports that nearly 70 per cent of the patients with muscular rheumatism have anomalies in the finger nail capillaries. He found a vasoneurotic state in several cases. This vasoneurotic state, described by Otfried Muller,³ is characterized by the great lability and instability of the innervation of the muscular system, the capillaries show astonishing variations, for in the same capillary field both narrow loops and some enormously dilated loops may be observed, in some instances there may be dilatations—true capillary aneurysms. Rhumann found, in agreement with Pemberton, a slow and an interrupted blood flow. He considers the globules found at the vertex of capillary loops characteristic signs of poor capillary circulation and obstruction in the blood flow. Our work has led us to accept Klingmuller's⁴ theory that the occurrence of globules is possible only when it is assumed that the width of the blood stream and the width of the capillaries differ, the greater width of the capillaries explaining the whirl movement of the blood.

Lunedei and Corradini⁵ report that in 62 per cent of patients suffering from chronic rheumatism the background of the capillary field was lighter in color than in the normal individual. They found the number of capillaries normal, but in 70 per cent of the cases the capillaries were constricted. Vasoneurotic conditions were present in only 8 per cent. The skin was pale, and the skin temperature ranged between 24 and 28 C.

Weil,⁶ in his microscopic study of the capillaries in 249 arthritic patients, reports a vasoneurotic state in 20 per cent and a poor blood flow in 25 per cent. However, he neglects to explain what he means by a poor blood flow. In his control cases, which were of the nonarticular rheumatic type, he found a vasoneurotic state in 33.3 per cent and a poor blood flow in 12.5 per cent.

Prusik,⁷ studying the blood vessels of the skin in chronic arthritis, found only on the skin above the inflamed joint signs of congestion which seemed to be secondary to venous changes.

RESULTS OF STUDY

We examined eighty cases of chronic arthritis: forty of rheumatoid arthritis and forty of osteo-arthritis. The British classification rheumatoid arthritis and osteo-arthritis was used as the terminology of the two major groups. The patients were examined before treatment of any kind was given, as it is a known fact that the salicylates and other therapy change the skin circulation and affect the capillaries. The point chosen for determination of the capillaries and the surface

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From the Capillary and Arthritis clinics of the Department of Medicine of the New York Post Graduate Medical School and Hospital. Aided by grants from the Harriet Weil Fund, the Oliver Rea Fund, the Josiah Macy, Jr., Foundation, and the General Medical Research Fund of the New York Post Graduate Medical School.
1. Wright, Lillie M. and Pemberton, Ralph. The Peripheral Surface Temperature in Arthritis. *Arch Int Med* 45: 147 (Jan.) 1930. Pemberton, Ralph. Developments in the Problem of Arthritis, *Acta rheumatol* 2: 11 (Sept.) 1930.

temperature was the finger nail fold We observed the size, number and form of the capillaries, the blood flow within them, and the surface temperature The equipment and methods used were those recently described by Duryee and Wright⁸ In addition, a complete physical examination, including a sedimentation test, was carried out in every case The technic of the

present time we have no satisfactory method for the exact measurement of the rate of the blood flow It may be stated that the flow is slow if it is possible to see the blood cells distinctly passing slowly through the capillaries

To measure the continuity of the flow, we used, in cases in which we found longer interruptions, the two-minute flow test, i e, we measured the time of the actual flow in two minutes We had several cases in which the two-minute flow test was under 90 seconds, in normal conditions it is over 110 seconds

The capillary picture at the finger nail fold in the different types of arthritis is shown in table 1 In 30 per cent of the rheumatoid arthritic patients there was a decrease in the number of capillaries In 52.5 per cent we found small constricted capillaries There was slow blood flow in 65 per cent of the cases, the capillaries were tortuous in 35 per cent, the surface temperature was subnormal in 52.5 per cent

In osteo-arthritis the capillary picture was in some respects different There is a decrease in number of capillaries only in fingers with pronounced Heberden's nodes The size of capillaries was small in 27.5 per cent The percentage of occurrence of slow blood flow was decreased to 52.5 per cent The fre-

TABLE 1—Study of the Capillaries in Chronic Arthritis

Age	Number			Size		Form		Blood Flow			Surface Temp	
	Normal	Decreased	Increased	Normal	Dilated	Constricted	Straight	Tortuous	Normal	Slow	Continuous	Interrupted
21-30	14	1	1	1	1	1	1	1	1	1	1	1
31-40	14	1	1	1	1	1	1	1	1	1	1	1
41-50	14	1	1	1	1	1	1	1	1	1	1	1
51-60	14	1	1	1	1	1	1	1	1	1	1	1
Total	40	28	12	18	1	21	20	14	14	26	24	16

Age	Number			Size		Form		Blood Flow			Surface Temp	
	Normal	Decreased	Increased	Normal	Dilated	Constricted	Straight	Tortuous	Normal	Slow	Continuous	Interrupted
21-30	1	1	1	1	1	1	1	1	1	1	1	1
31-40	1	1	1	1	1	1	1	1	1	1	1	1
41-50	1	1	1	1	1	1	1	1	1	1	1	1
51-60	1	1	1	1	1	1	1	1	1	1	1	1
Total	4	4	4	4	4	4	4	4	4	4	4	4

determination of sedimentation rate was the same as described by Dawson, Sia and Boots,⁹ the only modification was that we used, instead of 200 mm, 100 mm pipets

The patients were divided into age groups because of the physiologic changes characteristic of advancing years, which must be taken into consideration when looking for the pathologic lesions in chronic arthritis The classification of the capillaries into different groups was our most difficult problem It is generally known that in physiologic conditions there may be in the same capillary field straight, tortuous, small and

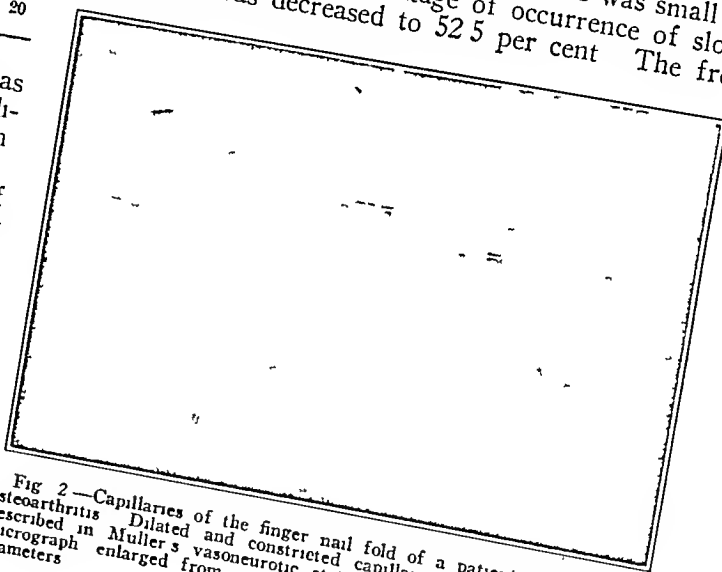


Fig 2—Capillaries of the finger nail fold of a patient aged 34 with osteoarthritis Dilated and constricted capillaries in the same field as described in Muller's vasa neurotic state From an unretouched photograph enlarged from a 35 mm. film with a magnification of 176 diameters

TABLE 2—Sedimentation Rate of Chronic Arthritis Patients

Type of Arthritis	Between 10-15 mm per Hour	Between 15-30 mm per Hour	Over 30 mm per Hour
Rheumatoid arthritis	18%	20%	21%
Osteoarthritis	32.5%	21.2%	2.0%

quency of tortuosity of the capillaries was increased to 60 per cent The surface temperature was increased to 50 per cent of these patients The results obtained in the sedimentation tests are shown in table 2

A vasa neurotic state, as described by Otfried Müller, was found in 15 per cent of rheumatoid arthritis and in 5 per cent of osteo-arthritis (table 3)

COMMENT

An analysis of the results of our study demonstrated that the density of the capillary bed varied in every individual to some degree We found a definite decrease in the number of capillaries only in rheumatoid arthritic patients on the skin above joints with pronounced local tissue changes, such as Heberden's nodes Fingers with Heberden's nodes have a distinctly decreased number of capillaries which are constricted, reducing the extent of the capillary bed This has a fundamental bearing on tissue nutrition We could not determine whether this disappearance of the capillaries is responsible for

TABLE 3—Vasoneurotic State in Chronic Arthritis

Type of Arthritis	Number	Vasoneurotic Patients
Rheumatoid arthritis	40	6
Osteoarthritis	40	2
	80	8
		Per Cent
		15
		5
		19

large capillaries, and changes in the rate of blood flow Taking these facts into consideration, we classified our capillary results into definite groups only if over 70 per cent of the capillaries were of a specific type We also examined several capillary fields in different fingers before a definite conclusion was drawn Up to the

⁸ Duryee A W and Wright I S Modern Technic for the Study of Human Capillaries Am J Med Sci to be published
⁹ Dawson M H Sia K H P and Boots R H The Differential Diagnosis of Rheumatoid and Osteo-Arthritis The Sedimentation Reaction and Its Value J Lab & Clin Med 15 1005 (Aug) 1920

the tissue changes, or whether the tissue changes cause the decrease in the capillaries

The size of the capillaries varied within the different arthritic groups. Small constricted capillaries were found in 52 per cent of the cases of rheumatoid arthritis in comparison to the occurrence of 27.5 per cent in osteo-arthritis. This is perhaps due to the con-



Fig 3—Capillaries of the finger nail fold of a patient, aged 45, with rheumatoid arthritis. The marked variation in morphology in the photomicrographs in figures 1, 2, and 3 may be noted. From an unretouched photomicrograph, enlarged from a 35 mm film with a magnification of 176 diameters.

stitutional makeup of the individual, the congenital disturbance of equilibrium between the sympathetic-parasympathetic system causing a widespread increase in the arteriolar and capillary tone. If Nordmann's¹⁰ and Woollard's¹¹ descriptions of a nerve supply enervating the Rouget cells are accepted, the stimulation of such nerve fibers may be the cause of the contraction of the capillaries.

But, on the other hand, the study by Brown¹² on the capillaries of the human skin shows that the nervous innervation is not alone responsible for the contractility of capillaries. He found that cervical ganglionectomy did not dilate the capillaries in any case of arthritis.

It seems that, besides the nervous innervation, general or local physicochemical components may also influence the tonus of the capillaries.

We found an increased tortuosity in 60 per cent of the cases of osteo-arthritis in comparison to 35 per cent in rheumatoid arthritis. We believe that this is a physiologic phenomenon and is due to the higher age average. Numerous studies by different research workers show that, parallel with the age, the tortuosity of capillaries increases. The average age of rheumatoid patients was 44, the youngest 24, the oldest 60. In comparison, the average age of osteo-arthritis was 53, the youngest 27, the oldest 69.

We could not find any connection between the tortuosity of the capillaries and the severity of the clinical symptoms.

The velocity and continuity of the blood flow gave nearly the same results in the different types of arthritis. We found a slow blood flow in 65 per cent of the patients with rheumatoid arthritis and in 52.5 per cent

of those with osteo-arthritis. Most patients with severe clinical symptoms had a slow blood flow.

We found a close connection between sedimentation and rate of capillary blood flow. In all cases in which we found a high sedimentation rate we found also a slow blood flow. The fact that an increased sedimentation is parallel with increased viscosity is evidence in favor of the conclusion that the rate of blood flow in the capillary circulation is influenced somewhat by the viscosity (physicochemical changes) of the blood. It was impossible to find any connection between the rate of blood flow and the tonus and form of capillaries.

We could not find any connection between the continuity of the blood flow and the sedimentation rate.

The surface temperature in 51.25 per cent of the chronic arthritic subjects was on an average lower than that of normal persons. This explains why arthritic patients often complain of numbness and cold hands and feet. The surface temperature, Foged¹³ reports, ranges in normal persons, measured on the finger nail bed, between 32 and 33 C. We found in rheumatoid arthritic patients the lowest temperature to be 20.2 C, in osteo-arthritis, 22.2 C.

All arthritic patients who had a low surface temperature had a slow and sometimes interrupted blood flow. It seems to us that the temperature of the finger nail bed under similar outstanding conditions varies according to the blood flow. In figure 4 the curves of the surface temperature and of slow blood flow are nearly parallel. We found the average lowest temperatures in rheumatoid arthritis between the ages of 31 and 40, and in osteo-arthritis between the ages of 41 and 50.

CONCLUSION

As observed in this series

1 In the region of pronounced tissue changes such as are found in Heberden's nodes and swelling of the

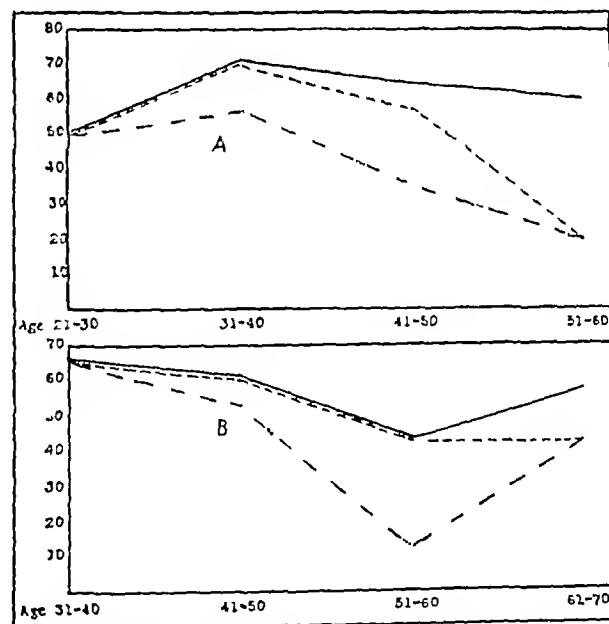


Fig 4—Percentage of subnormal surface temperature (dash line), slow blood flow (solid line) and interrupted blood flow (dot and dash line) according to age in A, rheumatoid arthritis and B, osteo-arthritis.

joints, we observed a definite decrease in the number of capillaries.

2 In the rheumatoid type of arthritis there is a higher percentage of small constricted capillaries than in osteo-arthritis, owing possibly to the constitutional makeup of these individuals.

10 Nordmann, M. Studien am Fettgewebe, Ztschr f d ges exper Med 48:84 (1925).

11 Woollard, H. H. The Innervation of Blood Vessels, Heart 13:319 (Dec) 1926.

12 Brown, G. E. Observations on the Surface Capillaries in Man Following Cervicothoracic Sympathetic Ganglionectomy, J Clin Investigation 9:115 (Aug) 1930.

13 Foged, Yens. The Normal Circulation of the Blood Through the Skin, Acta rheumatol 2:5 (Sept) 1930.

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- 3 In the cases observed, the rheumatoid type of arthritis has in 52.5 per cent, the osteo-arthritis in 50 per cent, lower surface temperature than the normal
- 4 All patients with a low surface temperature have a slow capillary blood flow
- 5 Increased sedimentation rate is always associated with a slow blood flow and a lowered surface temperature
- 6 The presence or degree of severity of the arthritis is not constantly reflected in the capillary or temperature changes
- 7 Although changes from normal do occur in the skin capillaries and skin temperature in many cases of rheumatoid arthritis and osteo-arthritis, because of the lack of consistency in these observations we cannot consider that they are uniformly responsible for the pathologic changes found in these conditions. Furthermore, it is not established that the condition of the capillaries of the nail fold is paralleled by the condition of the capillaries supplying the joints

CARCINOMA OF THE EPIDIDYMIS PHILIP JAISOHN, MD AND E V JORDAN, MD CHARLESTON, W VA

The infrequent occurrence of malignant tumors in the epididymis, particularly carcinoma, can be judged by the paucity of literature on the subject. Recently we found a case of primary cancer of the epididymis in the course of our routine work. We looked up the literature on the subject, as we had never seen a case before. To our surprise we found only twenty-one cases of primary malignant tumors of the epididymis reported, of which fifteen are sarcomas or teratomas of various sorts and six carcinomas. Three of the six are of doubtful histologic descriptions for carcinoma, which leaves only three authentic primary cancers in this organ as far as we could find. Undoubtedly more cases had occurred than those found reported, but such a small number in the world's literature indicates the rarity of the occurrence.

The most comprehensive contribution on the subject was made by Hinman and Gibson.¹ They reported three cases from the literature. Wrobel's case,² a case reported by Rowlands and Nicholson,³ and another case by Sakaguchi.⁴ The description of Wrobel's case does not fully convince us that it was a true carcinoma. These authors reported a case of their own which they thought was cancer, and Ewing, Bloodgood and Ophuls took the same view, although there was some difference of opinion among other pathologists. They also cited a case reported by Stout⁵ as being a possible precancerous lesion.

Among other investigators, Coleman, Mackie and Simpson⁶ reviewed the literature and reported a case of primary carcinoma of the epididymis of embryonal origin. They found only twenty-one cases of malignant

tumor of the epididymis in the literature, including those cited by Hinman and Gibson. Fifteen of the twenty-one cases were reported as sarcoma of various kinds and six were reported as carcinoma. Two squamous cell, one basal cell, one columnar cell, and two of the adenomatous type. Besides these two reports there are a few others that were not cited by them. Blumer,⁷ a case of sarcoma of the epididymis found at autopsy, Castaño and Astraldi,⁸ a case of embryoma malignum, Comforti,⁹ a case of lympho-angiosarcoma, Thompson-Walker,¹⁰ a case of myosarcoma, Scotti Douglas,¹¹ a case of fusocellular sarcoma, in the *Transactions of St Thomas Hospital* a case of round cell sarcoma was

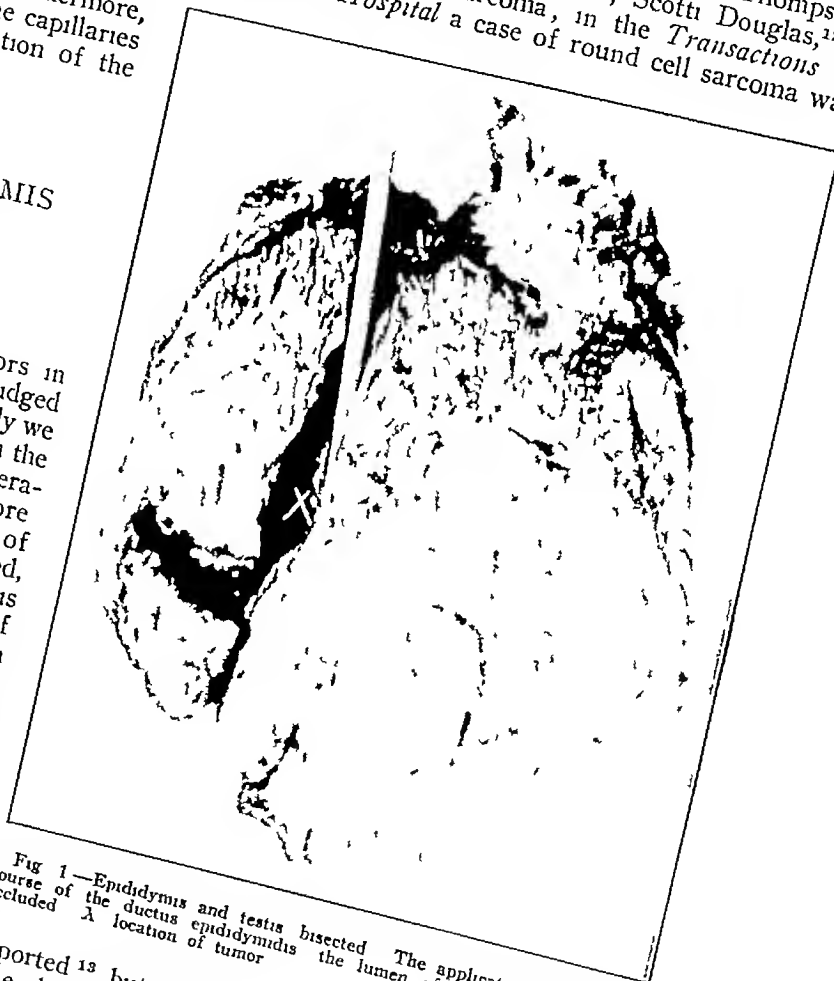


Fig 1—Epididymis and testis bisected. The applicator indicates the course of the ductus epididymidis. The lumen of the lower portion is occluded. A location of tumor.

reported¹² but the name of the author is not given. The older literature contains a few reports of sarcoma, but the diagnoses should be accepted with reservation.

REPORT OF CASE

J H Y, a white man, aged 34, admitted to the hospital, Oct 10, 1932, complained of pain in the region of the left testicle. The patient's mother died from carcinoma of the cervix at the age of 47. During the war he was thrown from the horse he was riding and fell on a fence, injuring the left testicle and prostate. He was operated on for the injury and made an uneventful recovery. He was free from any symptoms until a few days before his admission to the hospital when he began to have urethral discharges, which persisted irregularly in spite of treatments. The pain became

- 7 Blumer Albany M Annals 18 592 18 315 1897
- 8 Castaño E and Astraldi A Rev de especialid 1 660 668 1926
- 9 Comforti Morgagni 3 301 372 1910
- 10 Thompson-Walker Wurzberg 1904
- 11 Scotti Douglas R Proc Roy Med Soc London Sect. Urol 1922 1923
- 12 Tr St Thomas Hospital London 34 219 1906

- 1 Hinman Frank and Gibson T E Tumors of the Epididymis Spermathe Cord and Testicular Tunics Arch. Surg 8 100-137 (Jan) 1924
- 2 Wrobel August Beitrage zur Kenntnis der malignen Hodenge schwulste Breslau 1902
- 3 Rowlands K P and Nicholson C W Lancet 1 304 1909
- 4 Sakaguchi J New York Path. Soc 17 129 137 1911
- 5 Stout Prox. Frankfort Ztschr f Path. 15 1275 1914
- 6 Coleman J Mackie H A and Simpson William Tr Chi Gynec. & Obst. 25 111 116 (July) 1912

very severe, October 8, and on the advice of his physician he came to the hospital two days later. Physical examination showed that the left testicle was swollen to the size of an orange and was very tender to the touch. In a short while the swelling subsided and the pain eased somewhat, but it was still very tender. A tentative diagnosis of epididymitis was made, and epididymectomy and orchiectomy were done by one of us (E V J).

The gross examination of the tissues showed that the testis was atrophied but the epididymis was markedly thickened. The whole mass, including the testis and the epididymis, measured 6 cm in length, 5.5 cm in width and 2.5 cm in thickness. The epididymal portion was more than 2.5 cm wide and was thicker than the testicle portion. A white glistening fibrous nodule of irregular shape, the size of a small chestnut, was found among dark dense fibrous stroma, without capsule, at the lower third of the body of the epididymis, very near the globus minor. The nodule was on the lower part of the ductus epididymidis and was aberrant but not involving the testis, as the tunic covering it was intact. However, several fine white bands radiated from the central nodule and infiltrated into the surrounding dark stroma. The cut surface of the nodule presented a white, smooth, glistening appearance, streaked here and there with capillary hemorrhage.

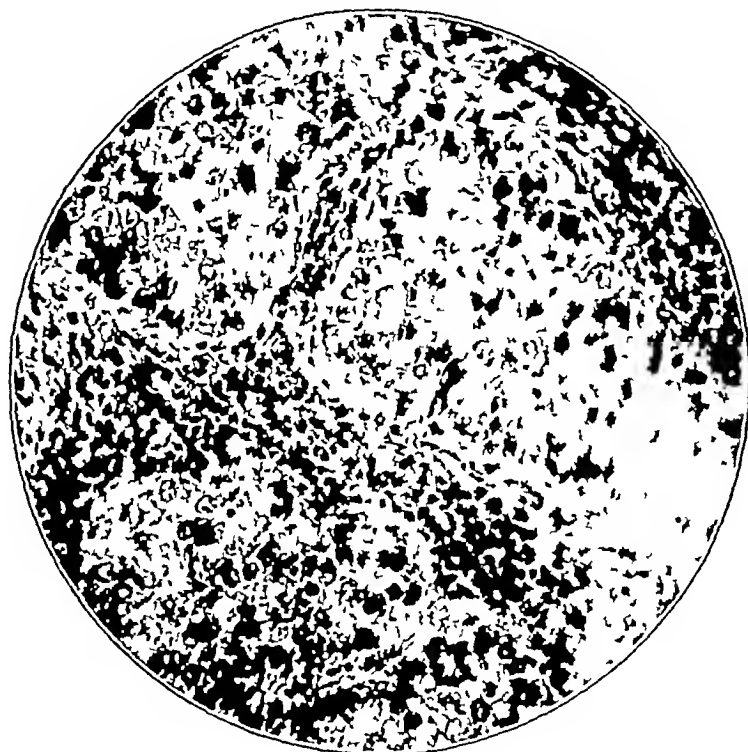


Fig 2—Large epithelial cells with malignant nuclei. Reduced from a photomicrograph with a magnification of 440 diameters. Hematoxylin and eosin stain.

Under a low power objective the tissue showed numerous alveolar formations by fibrous bands, and these alveoli were filled with anaplastic epithelial cells which suggested a slight keratinization in some areas, resembling squamous cells. Some were cuboidal, containing hyperchromatic nuclei with scanty cytoplasm. Mitotic figures could be seen occasionally. The cells in the stroma were smaller and round or ovoid but also hyperchromatic and scant in cytoplasm. In certain fields the large epithelial cells infiltrated rather diffusely when they were not confined by the fibrous wall of alveoli.

The location of the tumor nodule and the total obliteration of the lower portion of the ductus epididymidis in the gross specimen and the character of the epithelial cells led us to believe that they were originated from the lining cells of the duct at the lower part of the body of the epididymis. Judging from the histologic description, the tumor in the case reported by Rowlands and Nicholson³ is very much like ours, and they called it squamous cell carcinoma. The cells look like the squamous variety in our case also, but we believe they are the metaplastic lining cells of the epididymal duct. The presence of inflammatory products in the neighborhood of the tumor nodule indicates that there had been a chronic irritation,

probably due to some damage of the epididymis, unrecognized at the time of the injury to the testicle. According to the last report, about two months after the operation, the patient was doing as well as could be expected and showed no metastasis elsewhere.

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CASE STUDIES IN CHRONIC ARACHNOIDITIS

ELLIOTT C CUTLER, MD

AND

ROBERT ZOLLINGER, MD

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The neurologic surgeon is forced from time to time to operate without perfect localizing signs and without full appreciation of what the pathologic condition may be. He may even be said to be forced into such action more frequently than his general surgical colleagues through threatened loss of vision or other serious and urgent symptoms. It is thus that every neurologic surgeon of experience has accumulated many cases which he must classify as "tumor suspect" or "pseudotumor" cases. Out of these groups in the last twenty years have emerged certain definite clinical entities and disorders. One of these is a symptom complex produced by blockage in the cerebrospinal pathways after the cerebrospinal fluid has escaped from the internal ventricular system. This condition is generally accepted and classified under the term "chronic arachnoiditis," though it is sometimes called "active external hydrocephalus"¹ as differentiated from that type of internal ventricular system blocking which results in the commonly recognized condition of hydrocephalus.

This condition is, however, by no means entirely new in the sense that it had not long previously been described, for in the papers written by John Hilton² and published after his lectures at the Royal College of Surgeons of England in 1860, 1861 and 1862 in the volume entitled "Rest and Pain," there is a perfect description of a patient, dying at the age of 34, whose history as well as the conditions found at a post-mortem examination would be familiar to all neurologic surgeons of today. Hilton's patient died rather suddenly after a day of severe headache and staggering gait, obviously from medullary pressure. In the history are many interesting points, for from childhood he had been subject "to headache, derangement of stomach and occasional deafness."

His pulse was usually extremely weak, irregular and slow. He had been thought to be suffering from heart disease. He had a "peculiar, restless, uneasy look of the eyes and stare, with dilated pupils."

He also carried his head peculiarly as if affected with slight stiffness in the neck. A few months before his death, while in the country, he had a severe attack of vomiting. The day he died he had great difficulty in walking, staggered badly, felt giddy, went to bed and died shortly with marked symptoms of stertorous breathing.

The autopsy showed enlarged ventricles lined with healthy tissues. "The cerebrospinal opening between the under surface of the cerebellum and the upper surface of the medulla oblongata was completely closed."

From the Department of Surgery, Lakeside Hospital, Cleveland.
1 Gardner, W. T. Active External Hydrocephalus. A Report of Three Cases, *J. Nerv. & Ment. Dis.* 75: 601-611 (June) 1932.
2 Hilton, John. Rest and Pain, ed 3, London, George Bell & Sons, 1880.

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by a tolerably dense membranous structure, which formed a kind of pouch projecting downwards, and showed the direction of the fluid tension upon it to have been from above to below. The arachnoid in the neighborhood, at the base of the brain, was somewhat opaque and thicker than natural." Hilton, in writing up this case, apparently felt the need of protecting himself from criticisms of his colleagues as some neurologic surgeons feel they must do today when making the diagnosis of arachnoiditis, for he writes into the report that "this account has not been 'cooked,'" as apparently such matters were termed in his day. The description of this case of Hilton's should give courage to others to report similar cases, so that the symptom complex which relates to this condition may be more thoroughly understood and appreciated.

We believe that chronic arachnoiditis is a definite clinical entity which responds very favorably to surgical intervention. This belief is exemplified in the three cases which we present in this report. All three patients had increased intracranial pressure, marked loss of vision, and symptoms suggestive of a subtentorial block. The patients now have good vision and have remained symptom free for a period of over six years after suboccipital exploration was carried out. The cases are taken from a large group of tumor suspect cases and reported in detail as typical examples of this syndrome. Since in each case more than six years has passed since the original operation, tumor can hardly be argued as a possible etiologic factor.

REPORT OF CASES

CASE 1—History—S. S., a white boy, aged 9 years, entered the Lakeside Hospital, Oct 11, 1926, because of blindness and headaches. Nine days before admission he complained of a severe frontal headache. Close questioning showed that the



Fig. 1—Anteroposterior view of encephalogram in case 1. The third and lateral ventricles are enlarged but not displaced.

child might have had headaches for several months previously. The father stated that recently the child had been feverish and restless and had had great difficulty in emptying his bladder. The patient improved and the fever subsided following treatment by the family physician. Seven days later (two days before admission to the hospital), the boy complained that he could not see the "funny paper." At the time he was admitted to the hospital there was scarcely more than perception of light.

The family history was good. The patient had had chicken-pox at the age of 1 year and whooping cough at 5 years of age.

The boy's face was characterized by the vacant stare of blindness. There was choking of both disks to 4 diopters. A definite cracked-pot note was elicited by percussion of the skull. The reflexes were hyperactive and about equal on the two sides. There was generalized weakness of the muscles with definite ataxia to the left. The bladder was markedly distended and dribbling of urine was present. Roentgenograms of the skull gave evidence of a generalized increase in intracranial pressure. A preoperative diagnosis of a midline cerebellar tumor was made.

The more common syndrome of "pseudotumor" resulting from a generalized cysternal arachnoiditis is that of cerebellar dysfunction. Horrax⁵ reported thirty-three cases with symptomatology pointing toward a cerebellar tumor. He divided the cases into (a) acute or subacute, (b) chronic and (c) those with a preceding history of otitis media. Twenty-eight of these patients were improved or well from one to nine years after operation. Frazier⁶ classed 30 of his 1,209 cases as arachnoiditis or "pseudotumor." Twenty-two of these cases were followed at least two years, and one patient remained symptom free for twenty-five years after operation.

The diagnosis of chronic arachnoiditis is rarely made before operation. Although at operation a histopathologic change in the arachnoid membrane may be found without the discovery of a neoplasm, still the diagnosis of chronic arachnoiditis or "pseudotumor" cannot be made with certainty until a prolonged period of relief has passed. Davis and Haven⁷ believe the diagnosis of arachnoiditis should not be made but that the patients should be classed as tumor suspects and remain under close observation.

³ Heuer G. J. and Vail D. T. Jr. Chronic Cisternal Arachnoiditis Producing Symptoms of Involvement of the Optic Nerves and Chiasm. Pathology and Results of Operative Treatment in Four Cases. Arch. Ophth. 5: 334-349 (March) 1931.
⁴ Craig W. M. and Lillie W. I. Chiasmal Syndrome Produced by Chronic Local Arachnoiditis. Report of Eight Cases. Arch. Ophth. 5: 558-564 (April) 1931.
⁵ Horrax (Gilbert) Generalized Cisternal Arachnoiditis Simulating Cerebellar Tumor. Its Surgical Treatment and End Results. Arch. Surg. 98: 112 (July) 1924.
⁶ Frazier C. H. Cerebral Pseudotumors. Arch. Neurol. & Psychiat. 21: 111-1132 (Dec.) 1930.
⁷ Davis I. and Haven H. A Clinicopathologic Study of the Intracranial Arachnoid Membrane. J. Nerv. & Mental Dis. 73: 129 (Feb.) 1930 (March) 1931.

Operation and Result—Under ether anesthesia the posterior fossa was explored, October 14. A cyst containing about 100 cc of clear cerebrospinal fluid under great tension was encountered below the left lobe of the cerebellum. Following removal of this fluid the tension was greatly decreased, allowing exposure and inspection of both angles. The cerebellum appeared normal, and nothing unusual was noted when the hemispheres were needled. A presumptive diagnosis of basilar arachnoiditis was made.

After an uneventful convalescence, he was discharged from the hospital on the twenty-third postoperative day.

On request he reentered the hospital, March 28, 1932, about five and a half years after the operation, for a general check-up and encephalography. His general health had been good and he had remained free of symptoms. He was doing good school work in grade 6 B. The general physical and neurologic examinations gave perfectly normal results. His vision was good, although both optic disks were a little pale and the visual fields were slightly constricted. The blood Wassermann reaction was negative.



Fig. 2—Anteroposterior view in case 2. The lateral ventricles are not displaced but the third ventricle is slightly dilated.

Encephalography was done on the day of admission. One hundred and twenty cubic centimeters of spinal fluid was removed and 90 cc of air was injected into the lumbar space. The spinal fluid Wassermann reaction was negative and the Lange curve normal. Encephalograms showed both lateral ventricles to be slightly enlarged but symmetrical and not displaced (fig. 1). The left ventricle was slightly larger than the right and the pontile cisterna was well shown. The cortical markings were definitely diminished.

CASE 2—History—E. C., an intelligent but nervous white boy, aged 9 years, was referred to the Lakeside Hospital, Nov. 4, 1925, by Dr. H. J. Gerstenberger because of vomiting and headaches. For two weeks before admission the boy complained of headaches over the left eye and about the base of the skull. Several days before admission the parents noticed that the left eye was turned slightly inward. During this time he had vomited frequently after eating. The vomiting increased during periods of constipation. Influenza was common where the boy lived and the local doctor thought the child might have had an attack at the onset of the present illness.

The boy was undernourished but well developed. He was able to walk and the Romberg test was negative. The back of the neck was very tender and stiff. There was some hypotonia in the lower extremities and very slight asymmetry in the upper extremities. Both optic disks were choked to 4 diopters and there was evidence of partial paralysis of the left sixth nerve. A diagnosis of cerebellar tumor was made.

Operation and Result—A suboccipital exploration was carried out, November 7. A distinct difference was noted between the two sides of the cerebellum. There was a darker, more translucent color beneath the dura on the left side, and the underlying lobe of the cerebellum could not be seen. A large quantity of cerebrospinal fluid spurted into the field from this area when the dura was opened because of an accumulation of fluid in the cisterna with greater extension to the left side. The lobes of the cerebellum appeared normal on inspection, palpation and needling. Nothing was found in either recess.

The immediate response to the operation was good, but cerebrospinal fluid reaccumulated. November 16, 65 cc of slightly greenish cerebrospinal fluid was aspirated and similar amounts were withdrawn on two other occasions. The patient was given a series of high voltage roentgen treatments. His general condition seemed good, although he was a little irritable and complained of headaches at times. A hernia developed in the occipital wound and he was readmitted eight months later. At operation, June 26, 1926, an endothelial-lined cavity was found which covered both cerebellar hemispheres and easily contained about 200 cc of cerebrospinal fluid. The hernia was repaired and the patient recovered rapidly. The outlines of the optic disks were indistinct but no choking was present.

In response to a request, he reentered the hospital for a neurologic examination and encephalography, March 28, 1932. His health had remained very good and his only complaint was an occasional mild headache. He had been doing good school work in the sixth grade. The only positive observations were slight haziness of the margins of the optic disks, but there was no choking. Vision was good and the visual fields were not contracted. The reflexes were not remarkable.

Ninety-five cubic centimeters of spinal fluid was withdrawn and 80 cc of air injected intermittently. Encephalograms showed the lateral ventricles to be normal in size, contour and position and the third ventricle to be slightly dilated (fig. 2).

CASE 3—History—C. S., an intelligent single white youth, aged 19 years, was admitted to the medical service of the Lakeside Hospital, Aug. 19, 1926, complaining of attacks of headaches for the past six or seven years. These attacks had become more frequent and more severe for six months until they were finally present day and night the month before admission. He obtained some relief by lying down and hanging his head over the edge of the bed. The severe headaches were accompanied by nausea, vomiting, diminution in vision and dizziness. He had noticed a peculiar buzzing in his ears, which was more marked on the right side. There had been no staggering, motor or sensory disturbances.

The positive observations were bilateral choking of the optic disks to 3 diopters and evidence of increased intracranial pressure as shown in roentgenograms of the skull. The sella turcica was quite large and the posterior clinoids were partially destroyed.

The patient was transferred to the surgical service, August 27. The history, physical examination and roentgenograms of the skull suggested a pituitary tumor or a suprasellar cyst.

Operation and Result—Because of the absence of localizing signs, a right subtemporal decompression was performed, August 28, by Dr. Allen Graham. Almost within twenty-four hours the decompression wound was tense and the intracranial pressure was probably as great as before the operation. September 25, 60 cc of spinal fluid was removed by inserting a ventricular needle through the subtemporal decompression wound. At the same time 25 cc of air was injected by lumbar puncture. A small amount of air reached both lateral ventricles, showing that the cerebrospinal pathways were not completely blocked. October 2, 40 cc of fluid was replaced by air through a ventricular needle inserted through the area of decompression. Ventriculograms showed enlarged but not

distorted lateral ventricles. A cerebellar exploration was carried out, November 5. It was thought that the pia was a little thickened, but the exploration was otherwise entirely negative.

The postoperative course was uneventful and the patient was discharged from the hospital, November 23.

By request he reentered the hospital, March 4, 1932, almost five and a half years after the suboccipital exploration, for a check-up and encephalography. He had recovered completely and remained symptom free. Vision in both eyes was good and the optic disks were normal in appearance. The neurologic examination was negative.

Examination of the spinal fluid showed 3 cells per cubic millimeter and a negative Pandy reaction. The Wassermann reaction was negative. The total protein was 213 mg per hundred cubic centimeters. One hundred and seventy-five cubic centimeters of spinal fluid was removed and 150 cc. of air injected. Encephalography showed the ventricles to be slightly enlarged but normal in contour and position (fig 3). The air was distributed equally in the cortical pathways over the two hemispheres.

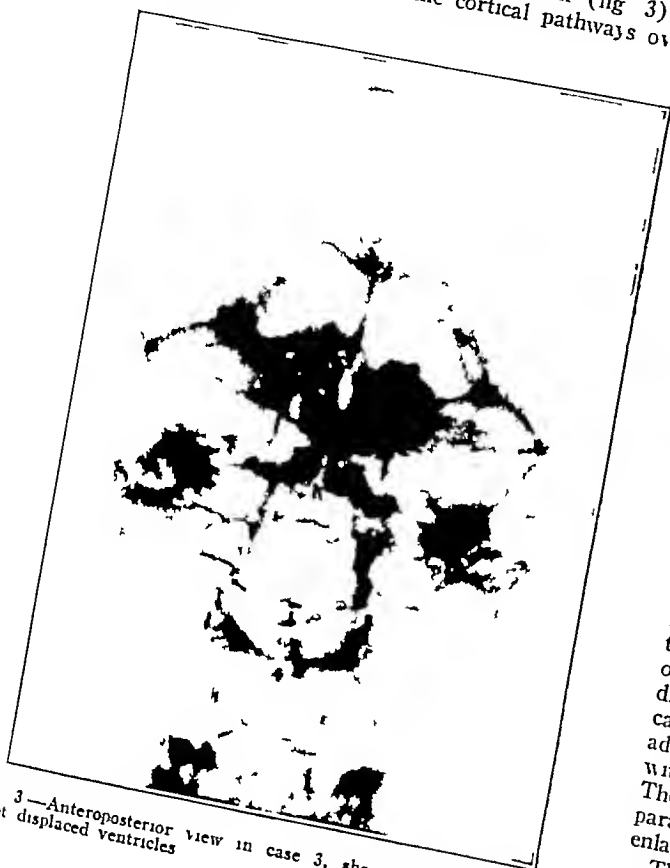


Fig 3—Anteroposterior view in case 3, showing moderately dilated but not displaced ventricles

COMMENT

We believe that these patients have remained symptom free for a sufficient number of years to make the diagnosis of intracranial tumor unlikely. Furthermore, by encephalography the ventricles were found to be symmetrical in outline and position. This finding gives further conclusive evidence against the presence of tumor, which in a period of more than six years would have produced some distortion of the ventricular system. The accumulation of cerebrospinal fluid in the posterior fossa probably results from partial obstruction by scar tissue in the subarachnoid channels at the level of the tentorium. Experimentally, Dandy⁸ has produced hydrocephalus by causing adhesions about the incisura tentorii which blocked the free flow of cerebrospinal fluid upward from the posterior fossa. Thus, he

believes, limits the absorption of the cerebrospinal fluid to one fifth of the total arachnoid space. Perhaps a low-grade infection, such as influenza, might produce adhesions in the cisterna of these patients and a sub-tentorial block with the resulting accumulation of cerebrospinal fluid in the posterior fossa. A sub-occipital decompression gives relief by creating additional space during the periods of excessive formation and accumulation of the cerebrospinal fluid, and permits the gradual but continuous passage of the fluid so that in time of lessened secretion the excess accumulated passes by the blocked area and no great pressure is exerted. Thus, a suboccipital decompression in such cases acts merely as a safety valve.

SUMMARY

In three cases of "pseudotumor" or chronic arachnoiditis in which there were symptoms of highly increased intracranial pressure, blindness or poor vision, and evidence of cerebellar dysfunction, the patients have remained symptom free with good vision for more than six years after suboccipital decompression. There is no evidence of intracranial tumor, as shown in recent encephalograms.

Peter Bent Brigham Hospital

Clinical Notes, Suggestions and New Instruments

HYPOTHYROIDISM ASSOCIATED WITH CARDIAC ENLARGEMENT (MYXEDEMA HEART) AND AURICULAR FIBRILLATION

JOHN E. WALKER, M.D., OPELIKA, ALA.

Cardiac enlargement associated with hypothyroidism was first described by Zondek.¹ Ayman, Rosenblum, and Falcon-Lesses² recently reviewed the subject, collecting reports of twenty-two cases from the literature and reporting two cases of their own. Gotten³ has since reported another case. Cardiac insufficiency was present in some of these patients. The administration of thyroid Digitalis therapy was often given without benefit before the proper diagnosis had been made. The striking result produced by thyroid in this condition is paralleled only by the effect of vitamin B on the cardiac enlargement in beriberi, as described by Aalsmeer⁴ and others. This paper will describe another case of hypothyroidism with cardiac enlargement, apparently the twenty-sixth to be reported. The patient also emphasizes the fact that marked hypothyroidism may occur in slender individuals without the typical appearance of myxedema. Further, auricular fibrillation was present. Although auricular fibrillation is a frequent complication of hyperthyroidism, this is the first example, to my knowledge, of its association with hypothyroidism.

REPORT OF CASE

History—The patient was a white man, aged 39, a machinist, seen, May 4, 1932, complaining of aching pains in the arms and legs and shortness of breath. He had been married twelve years, there were two children living and well, his wife had had no miscarriages. The family history was otherwise unimportant. He had never had typhoid, rheumatic fever, dysentery or venereal disease. He had malaria in 1912. In 1918 he enlisted in the army, passing the physical examination without com-

- ¹ Zondek H. Das Myxodemberz, Munchen. med. Wchnschr. 65: 1180 (Oct. 22) 1918.
- ² Ayman David, Rosenblum Harold and Falcon-Lesses Mark. Myxedema Heart Without Evidence of Cardiac Insufficiency, J. A. M. A. 98: 1721 (May) 1932.
- ³ Gotten H. B. Myxedema A Case Report, Ann. Int. Med. 5: 1492 (June) 1932.
- ⁴ Aalsmeer W. C. Herz und Kreislauf bei der Beri beri Krankheit, Wien. Arch. f. inn. Med. 16: 193 (Jan. 20) 1929.

⁸ Dandy W. E. Experimental Hydrocephalus. Ann Surg. 70: 129 142 (Aug.) 1919.

ment His health was good during his army service except for influenza in France, which required hospitalization for thirty days At the time of his routine physical examination incident to discharge from the army in 1919 he was told by the medical officer that his pulse was irregular and that he needed hospitalization for further study He refused to enter a hospital, saying that he had no complaint, and his request for immediate discharge was granted In 1921 he was refused for life insurance on account of irregular pulse Since that

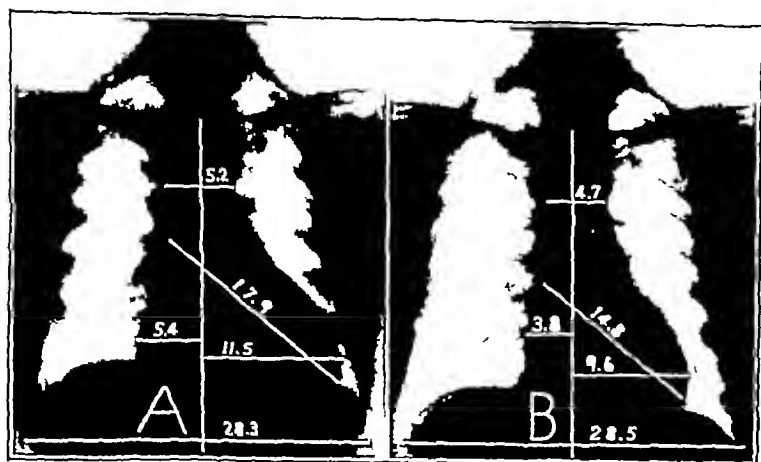


Fig 1—Measurements of heart A, before thyroid therapy, B, after thyroid had been taken for five months

date he has been aware of irregular pulse all the time, determined by feeling of it There has been no subjective consciousness of an irregular heart He had another attack of influenza four years before the time of examination

About 6 years before, he noted that he did not perspire On hot days his fellow workers would be drenched with perspiration, while his own skin remained perfectly dry He had also been cold natured These complaints were brought out by leading questions, and the patient had attached no particular significance to them He suffered from constipation for years

He considered that his present illness began two years before, when he broke down physically following a period of several weeks during which he attempted to work from fifteen to eighteen hours a day He became weak and suffered from dizziness and shortness of breath He had not been able to work since, though he had been up and about most of the time During the past two years he had suffered almost constantly from deep aching pains in the arms and legs All of his teeth were pulled in the effort to correct this aching, which had been diagnosed as arthritis A year before, he entered a hospital, where a roentgenogram showed enlargement of the heart He was given digitalis without benefit and left the

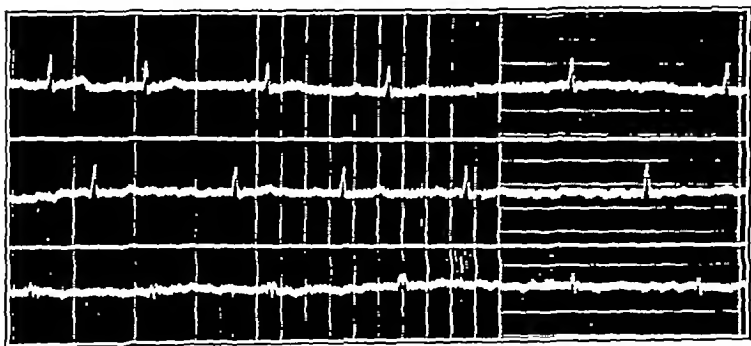


Fig 2—Condition before thyroid therapy auricular fibrillation, T waves almost iso-electric

hospital after two weeks He had been forgetful His feet had been moderately swollen from time to time

Examination—The patient was slender, 70½ inches (178 cm) tall and weighing 150 pounds (68 Kg) The skin was of a yellowish, pasty color There was slight puffiness of the lower lids There was a raised erythematous desquamating area about 4 by 8 cm on the extensor surface of the left forearm There was no edema The axillae were dry

The pulse was totally irregular in force and rhythm, with a rate of 60, and no pulse deficit The blood pressure was

approximately 140 systolic, 80 diastolic The apex impulse was not visible nor palpable The area of relative cardiac dulness was enlarged There were no heart murmurs

A teleroentgenogram of the heart showed transverse enlargement (fig 1A) The measurements were midline to right border, 5.4 cm, to left, 11.5 cm, transverse diameter, 16.9 cm, internal diameter of the thorax, 28.3 cm ($16.9 - 28.3 = 60$ per cent), length, 17.9 cm, great vessels, 5.2 cm The electrocardiogram showed auricular fibrillation, rate 54 The T waves were almost iso-electric (fig 2)

Fluoroscopic examination of the gastro-intestinal tract was negative The gastric contents after an Ewald meal contained no free hydrochloric acid on two examinations There was no occult blood in the stool The urine contained a trace of albumin, no bile, urobilinogen, sugar or casts, the specific gravity was 1.017 The icterus index of the blood serum was 6 The Wassermann and Kahn tests were negative

The basal metabolism was minus 41 per cent

The red blood count was 3.9 million, hemoglobin, 73 per cent, white blood cells, 4,500, neutrophils, 54 per cent, eosinophils, 4 per cent, basophils, 1 per cent, lymphocytes, 36 per cent, monocytes, 5 per cent The red blood cells appeared normal on smear

Course—The patient was given 1 gram (0.065 Gm) of thyroid, U S P, a day, the daily dosage being increased 1 gram each week until he was taking 4 grains (0.26 Gm) a day This dose was maintained until the end of the fifth week The basal metabolism was minus 26, minus 22 and minus 5 per cent at the end of the second, third and fifth weeks, respectively Since then the basal metabolism has varied between minus 9 and plus 3 per cent on a maintenance

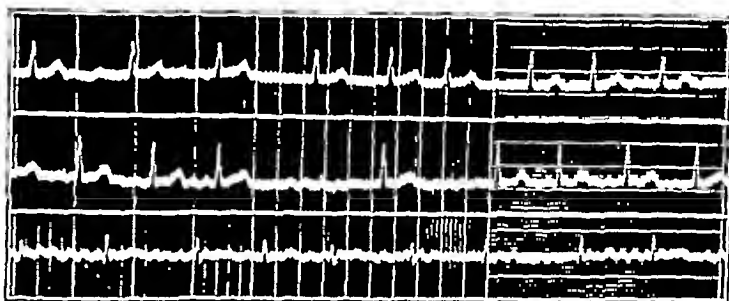


Fig 3—Condition after patient had been taking thyroid for five months T waves much more pronounced, auricular fibrillation still present

dose of from 2 to 2½ grains (0.13 to 0.16 Gm) of thyroid daily The patient, in addition, has received pills of ferrous carbonate and dilute hydrochloric acid, and has been instructed to eat a diet containing meat, green vegetables, milk and eggs

At the end of three weeks there was an almost complete disappearance of the yellow pallor, and the skin lesion on his left forearm had healed At the end of the fourth week he had begun to perspire normally The troublesome aching pains also disappeared His weight decreased to 138 pounds (62.6 Kg) after five weeks of treatment but has since increased to 145 pounds (65.8 Kg) Throughout the whole time of treatment the patient was ambulant, being seen only at the office After three months he resumed his regular occupation and has worked eleven hours a day for five days a week since that time (The total period of observation has been six months)

Thyroid therapy had no effect on the auricular fibrillation, although the T waves became very much more prominent in the electrocardiogram (fig 3) No effort was at first made to treat this arrhythmia, since it seemed desirable to ascertain whether it would not disappear under thyroid therapy Recently quinidine sulphate in doses up to 15 grains (1 Gm) a day has caused no change I hesitate to give this ambulant patient full doses of quinidine, although this is recommended by Weisman⁵

A teleroentgenogram showing the marked diminution in the size of the heart after five months' observation is shown in figure 1B The measurements are midline to right border, 3.8 cm, to left, 9.6 cm, transverse diameter, 13.4, internal diameter of thorax, 28.5 cm ($13.4 - 28.5 = 47$ per cent), length, 14.8 cm, great vessels, 4.7 cm

5 Weisman S A Auricular Fibrillation Ambulant Treatment with Quinidine, Arch Int Med 49 728 (May) 1932

SUMMARY AND CONCLUSIONS

An additional case of hypothyroidism associated with cardiac enlargement ("myxedema heart") was observed. The heart returned to normal size under thyroid medication. The heart condition was complicated by the presence of auricular fibrillation, on which thyroid had no effect. It appears entirely logical to consider that the auricular fibrillation was caused by the hypothyroidism, although it cannot be disproved that the arrhythmia was an independent condition of unknown etiology.

The slenderness of this patient emphasizes the fact that hypothyroidism is not necessarily associated with obesity. Other than slight puffiness of the lower lids and a yellowish pallor, his appearance or demeanor in no way suggested hypothyroidism. A typical history of hypothyroidism was brought out only by leading questions.

Dickson Building

ELECTROCARDIOGRAPHIC OBSERVATION DURING
CARDIAC PAIN

LOUIS FAUGERES BISHOP, M.D. AND LOUIS FAUGERES
BISHOP, JR., M.D., NEW YORK

The opportunity of taking an electrocardiogram during an attack of cardiac pain occurs rather rarely in private practice. We were fortunate enough, recently, to have this experience in our office. The patient was a man, aged 48, who had had moderately severe precordial pain for fourteen hours previous to our observation. This pain was practically continuous and radiated to his left arm, as far as the elbow. It was unaccompanied by any other subjective symptoms. As he had been unable to obtain any symptomatic relief and suspecting the possibility of this being an attack of angina, he sought medical advice.

A history was obtained of his having had slight pain on exertion, particularly when walking, for the past three months. Otherwise he had been always well.

The physical examination was entirely negative except for a hypertension, the systolic blood pressure being 190 and the diastolic 100. Whether this was an accompaniment of his anginal attack or a preexisting condition it was impossible to say at the time. No leukocytosis was present. The temperature was normal. Other laboratory examinations, including a six-foot roentgenogram, urinalysis and a Wassermann test, gave no significant results.

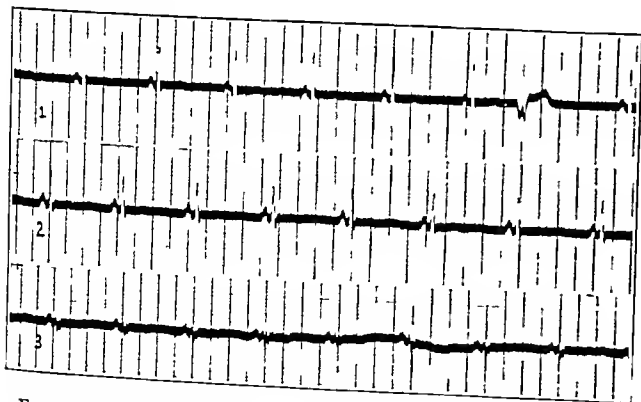


Fig 1—T wave iso-electric in all leads in record obtained June 17, 1932. Occasional ventricular extrasystole.

The first electrocardiographic examination was made on June 17, 1932 during this anginal attack. The significant findings were the fact that the T wave was iso-electric in all leads. In addition there was an occasional ventricular extrasystole present (fig 1).

Following this examination the patient was immediately put to bed for a period of rest. His pain gradually disappeared. The blood pressure fell to 130 systolic 80 diastolic. No other physical signs or fever developed. No medication was given except mild sedatives. June 27 a second electrocardiogram was taken which showed further changes in the T wave, consisting of inversion in leads 1 and 2 (fig 2).

Although the duration and severity of this attack of pain led to the probable diagnosis of a coronary thrombosis, it was not until the second graph was taken that we were able entirely to confirm the characteristic sequence of events representing the progression of pathologic events that had taken place.

As it is an exceedingly difficult matter to decide whether infarction of the heart has taken place or not during an attack of pain, it seems to us important that whenever an opportunity affords, attacks of cardiac pain, either of brief or of prolonged duration, should be studied electrocardiographically. The electrocardiogram actually taken during the paroxysm of pain in this case did show early changes in the T wave.



Fig 2—T wave inverted in leads 1 and 2 in record obtained June 27, 1932.

It is well known, as has been shown by Parkinson and Bedford,¹ Feil and Siegel,² and others, that even during short paroxysms of pain there may be definite and transitory changes in the ventricular deflections of the electrocardiogram. It is particularly significant that both transient pain and true infarction can affect the electrocardiogram in a similar manner. The mechanism underlying these changes may be essentially the same.

This case seems to us important because in the first place an opportunity was afforded to electrocardiograph a patient during an attack of actual cardiac pain in office practice. At the time of the attack, early changes in the T wave were noted. At a later date the electrocardiographic observations were those often seen in cardiac infarction. A diagnosis of cardiac infarction, although suspected clinically, could at a later date be confirmed, electrocardiographically.

121 East Sixtieth Street

HYPERPYREXIA WITH CORONARY THROMBOSIS

JOHN H. FOSTER, M.D., WATERBURY, CONN.

Fever and leukocytosis appearing shortly after the onset of symptoms are regarded as important points in the diagnosis of coronary thrombosis. The rise in temperature is quite constant, usually running from 99.6 to 102 or 103 F for a few days to a week and is apparently due to absorption of the decomposition products from the necrosing muscle in the infarct area.

The unusually high fever in the case of coronary thrombosis recorded here seems to make it worth reporting.

F. L. S., an executive in a local foundry, was 44 years of age and had apparently been in excellent health. He had always been athletic, full of abundant energy and kept up his gymnastics, volley ball, and golf throughout the year. He was a rather heavy smoker and moderate user of alcoholic liquors. He had passed several examinations for life insurance during recent years. I examined him in 1930 for one company and found nothing definitely wrong. On a later check up roentgenograms of his teeth were negative and the blood Wassermann reaction was negative, but he did have boggy red tonsils.

¹ Parkinson John and Bedford D. E. Electrocardiographic Changes During Brief Attacks of Angina Pectoris. Their Bearing on the Origin of Anginal Pain. *Lancet* 1: 1519 (Jan 3) 1931.
² Feil Harold and Siegel M. L. Electrocardiographic Changes During Attacks of Angina Pectoris. *Am J M Sc* 175: 255-260 (Feb) 1928.

Business worries had been extreme and he had not taken a vacation the past year. During the week before the onset of his illness he had played through a local golf tournament. The day preceding he had felt substernal pain briefly during his match, which had been relieved by a short rest, but he slept well that night.

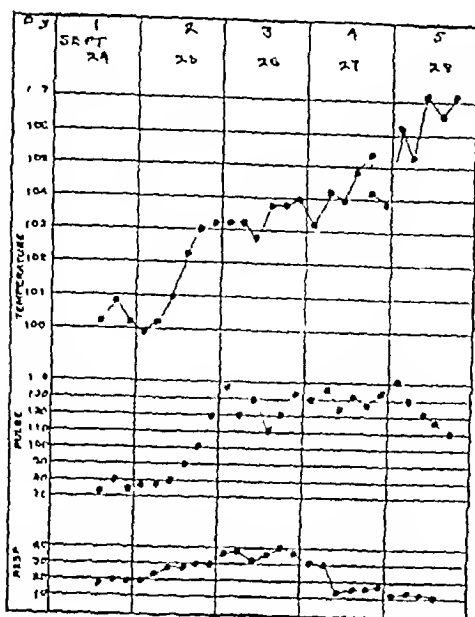


Fig 1—Clinical course, showing rise of temperature to 107.2 F

On the morning of Sept 24, 1932, he complained to one of his associates of a tightness in his chest. About 9:45 a.m., while alone on the third floor, he called to the telephone operator, who went to him as quickly as she could. He staggered across to the elevator and collapsed, complaining of terrible pain in his chest.

I saw him about fifteen minutes later. He was conscious, but was cold, clammy, pulseless and gray. The heart sounds

were almost inaudible. The pain was apparently terrific all through the epigastrium, chest, neck and shoulders.

Morphine, one-half grain (0.03 Gm), was given at once and repeated twice at about fifteen minute intervals before the pain was finally eased. Epinephrine, 0.5 cc, before the last

was unable to void urine and required catheterization till the end. Perspiration was profuse.

The heart sounds were very distant for the first hour but became stronger and more rapid. The second sound was replaced by a systolic murmur and there was gallop rhythm. No definite pericardial friction sounds were heard. The blood pressure varied, as is noted in the temperature chart, from being unobtainable at first to 130 systolic, 80 diastolic, the first day. The systolic pressure gradually dropped to 80 and to

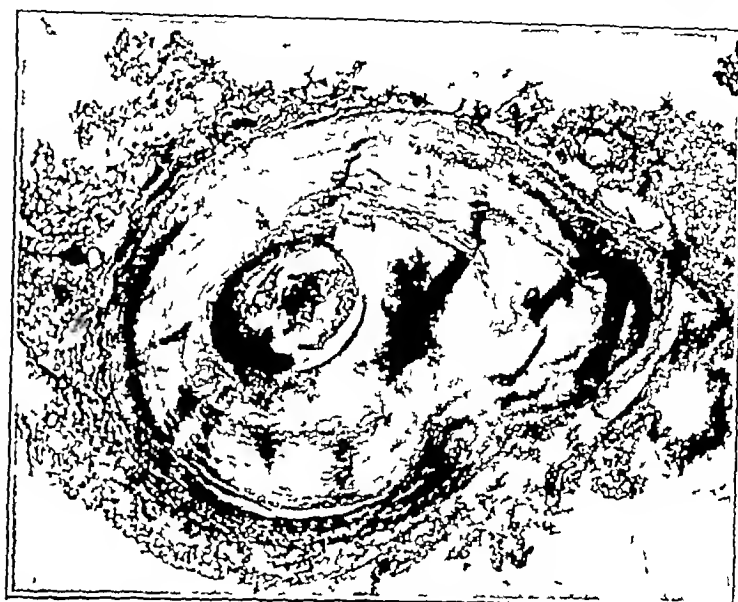


Fig 3—Section of coronary artery showing sclerosis, arteritis and thrombus

60 during the last two days. The lungs remained clear and there was only slight abdominal distention.

The leukocyte count was 20,300, with 85 per cent polymorphonuclears on the 25th and 16,000 on the 27th. The urine was concentrated but otherwise normal.

With the rise in temperature and dehydration he became irrational and very restless. Toward the end he became almost maniacal, requiring restraint and narcotics. Dextrose intravenously, 100 cc of a 50 per cent solution, was given twice daily, and 1,000 cc of Ringer's solution by hypodermoclysis helped only partially. Morphine, one-fourth grain (16 mg), with or without atropine, one-one hundred and fiftieth grain (0.4 mg), gave most relief and was administered every three to six hours. The oxygen tent seemed only to increase the restlessness.

An electrocardiogram (fig 2A) taken ten hours after the onset showed a heart rate of 76 per minute, with sinus rhythm. The QRS wave in lead 1 was almost iso-electric, showing only a slight notching, with a high ST. Axis deviation was plus 55 degrees.

The electrocardiogram taken on the 26th (fig 2B) showed a rate of 120. The QRS in lead 1 was wider. The ST wave taken was higher, but the T wave was upright. QRS in leads 2 and 3 was slurred, and T_2 was now inverted. Neither showed the typical changes of coronary thrombosis, both showed signs of a badly damaged myocardium.

Partial autopsy fifteen hours after death and after embalming showed a heart of normal size. There was an area of fibrinous exudate on the posterior surface of the heart and a hemorrhagic discoloration of the posterior pericardial sac but no increase of pericardial fluid. The whole left ventricle was dark and soft. Sections showed the ventricular muscle to be hemorrhagic and flabby, and in places near the apex questionable abscess formation. The surface arteries were bluish streaked and on section were hard and cartilaginous throughout. The larger portions were irregular and felt calcareous. About 1 cm from the origin of the left coronary artery was a thrombus which appeared hemorrhagic on the surface and which was demonstrated on section. A cross section (fig 3) prepared by Dr J O Collins of the Waterbury Hospital showed the advanced sclerosis of the artery, signs of arteritis in some areas, and a part of the clot which caused the occlusion.

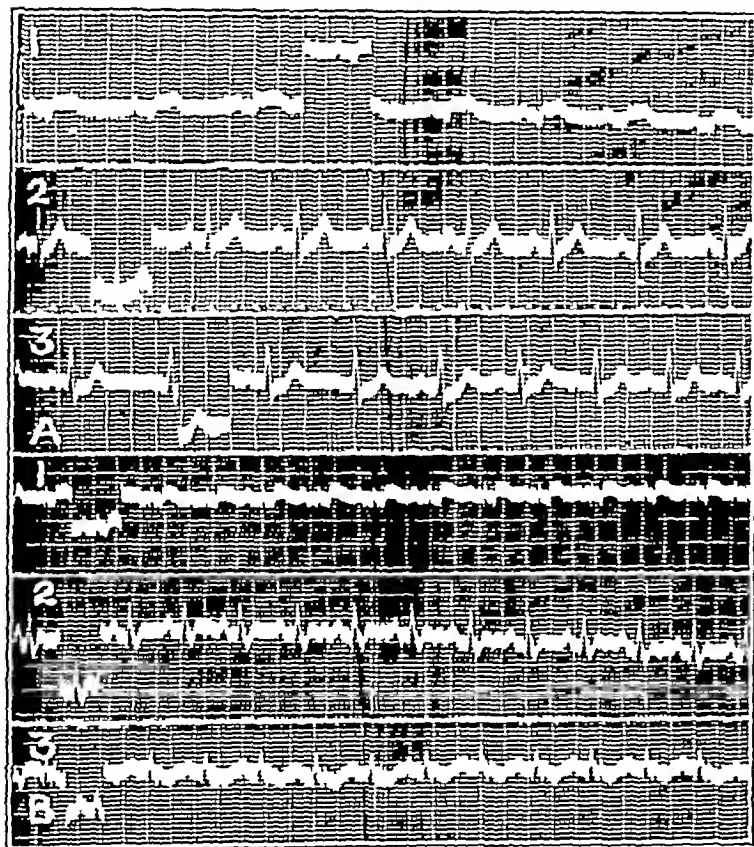


Fig 2—Signs of damaged myocardium A, ten hours after onset, B, fifty-four hours after onset

administration of morphine and again after about fifteen minutes seemed to increase the strength of his pulse and heart sounds. He slept quietly for three hours, when he was removed by ambulance to his home.

The temperature chart (fig 1) shows graphically the course during the next four days. The severe pain did not return but he frequently complained of a feeling of substernal pressure, which was worse when the bladder was distended. He

GALVANIC BURN—HOLLANDER ET AL

1029

Reports of coronary thrombosis in its various aspects are frequent, but a survey of the literature has failed to disclose any case with such a degree of hyperpyrexia.

103 North Main Street

GALVANIC BURNS OF THE TONGUE

LESTER HOLLANDER, M.D., LEO SHONFIELD, D.D.S., PITTSBURGH AND ABRAHAM FISHER, M.D., MCKEESPORT, PA.

That galvanic currents generated by dissimilar metals used for the purpose of dental fillings, crowns and bridgework may cause lesions of the mucous membrane of the oral cavity has been noted previously by Fitzwilliams,¹ Lain² and Hollander.³ The following report adds another clear-cut demonstration of that contention.

REPORT OF CASE

History—G. R., a married man, aged 40, white, an electric welder, referred to the Pittsburgh Skin and Cancer Foundation, July 2, 1932, by Dr. P. J. Zeedick, presented six faceted lesions

There were no other dental restorations in his mouth. The crowns had been inserted sixteen months before and the bridge-work twelve months before. Shortly after the bridge was installed, the lesions described made their first appearance on the tongue and had since grown progressively worse. The patient complained of a metallic taste, a burning, and a sensation of thickness of the tongue. Smoking, chewing of tobacco or anything that caused an increased flow of saliva aggravated the subjective symptoms.

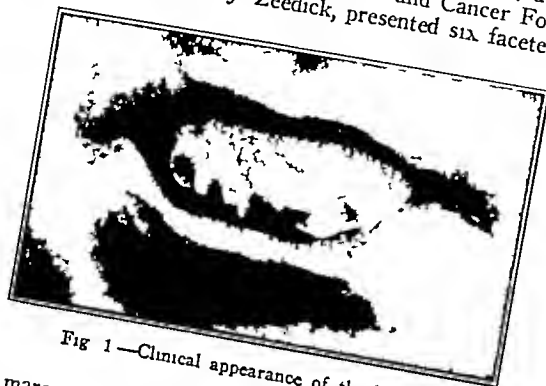


Fig 1—Clinical appearance of the lesions

on the margin and tip of the anterior third of the tongue. Although this entire area of the tongue was swollen and reddened, each lesion was distinct and separate and conformed in shape to the lingual surfaces of the upper anterior teeth. The center of each of these six lesions was depressed, and the borders were raised above the surrounding inflamed mucous membrane covering of the tongue. The lesions themselves were covered entirely by a white discoloration, which felt thick and rough and was so firmly attached that it could not be removed. This portion of the tongue rested against certain dental restorations, which consisted of three crowns and a small fixed bridge.



Fig 2—Gold crowns and bridgework

The upper right lateral, the upper right cuspid and the upper right first bicuspid were crowned with hollow metal two piece carat gold. The upper left lateral incisor had a hollow metal two piece 22 carat gold crown to which the upper left lateral incisor, in the form of a porcelain pin facing, was soldered. This bridge had also a lingual rest extending into the gingival third of the natural left central incisor. The porcelain pin facing and the lingual rest were backed with 24 carat gold and soldered to the gold crown with 18 (?) carat gold solder.

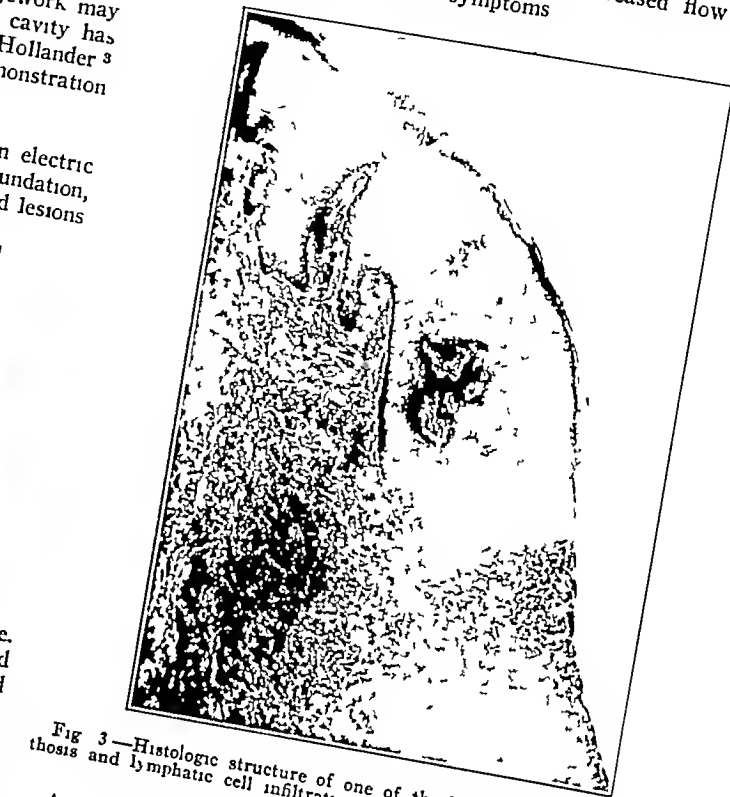


Fig 3—Histologic structure of one of the lesions. The marked acanthosis and lymphatic cell infiltration of the corium may be noted.

A clinical diagnosis of leukoplakia linguae and chronic glossitis was made.

Course of the Disease and Treatment—July 7, 1932, the largest lesion was removed for microscopic study. July 13, all restorations were removed. July 15, the tongue showed a marked improvement, the lesions became flatter and most of the inflammation and all the subjective symptoms disappeared. On account of the presence of periapical infection, the upper right lateral, the upper right cuspid and the upper right first bicuspid were extracted. By July 21, the lesions had disappeared entirely.

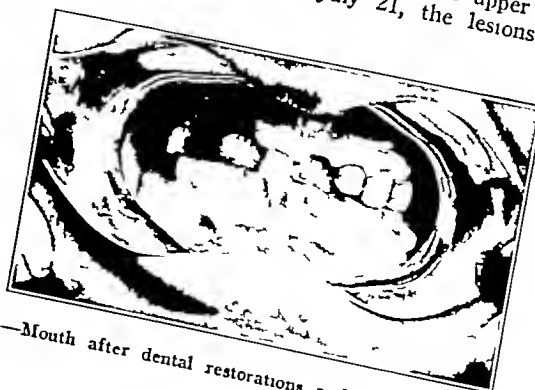


Fig 4—Mouth after dental restorations and infected teeth had been removed.

The histologic structure showed changes both in the superficial and in the deeper layers of the lingual mucosa. This consisted of a hyperkeratosis, an intense acanthosis with widening and deep proliferation of the interpapillary pegs, and a marked lymphocytic infiltration of the papillary layer. The blood vessels appeared dilated. Thus the histologic structure confirmed the clinical diagnosis of leukoplakia and chronic inflammation of the tongue.

From the Pittsburgh Skin and Cancer Foundation.
¹ Fitzwilliams, D. C. L. "The Tongue and Its Diseases." New York: Oxford University Press, 1927, p. 150.
² Lain, E. S. "Chemical and Electrolytic Lesions of the Mouth." *Caused by Artificial Dentures.* *Arch. Dermat. & Syph.* 25: 21-31 (Jan.) 1933.
³ Hollander, Lester. "Galvanic Burns of the Oral Mucosa." *J. A. M. A.* 99: 153-54 (July 30) 1932.

In order that the possibility of a hypersensitivity of the patient to gold could be excluded, a patch test was carried out, leaving the removed gold in apposition with the skin for a period of one week. This procedure caused no perceptible reaction.

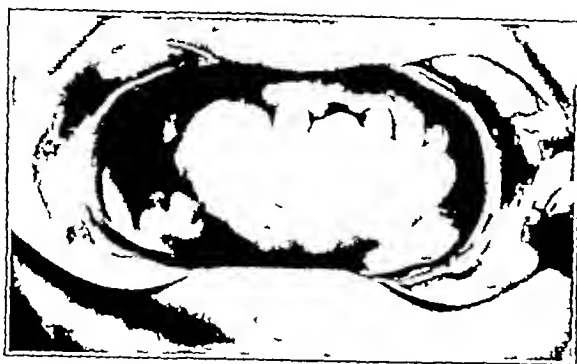


Fig 5—Healed condition of the tongue

COMMENT

The history, clinical appearance before and after the removal of the crowns and bridgework and photomicrographs of one of the lesions are submitted to substantiate further the contention that galvanic burns cause pathologic lesions in the oral mucosa.

631 Jenkins Building, Pittsburgh—536½ Fifth Avenue, McKeesport

TORULA MENINGO ENCEPHALITIS

JAMES B ROGERS, M D AND FRANKLIN JELSMA, M D
LOUISVILLE, KY

This case of torula meningo-encephalitis is reported as a matter of record and to call attention to the recognition of this condition, rather than because of some unusual feature of the case. The clinical course is fairly representative of torula infection of the central nervous system.

The literature up to 1929 has been reviewed thoroughly by Stone and Sturdivant.¹ The differential points between torula



Fig 1—Section through leptomeninges and cortex in area of infection, showing a portion of an artery with *Torula histolytica* present in large numbers in the pia. Reduced from a photomicrograph with a magnification of 990 diameters.

infection, oidiomycosis and coccidioidal granuloma were considered in detail by Stoddard and Cutler.²

REPORT OF CASE

G. G., aged 47, a telegrapher, first observed Feb 10, 1930, was found lying unconscious on the floor by his wife, three

weeks previously, just before the usual time to depart for work. Prior to this time his health had been good. After a short time he regained consciousness. There was a total amnesia for events immediately preceding the unconscious state. The patient remained in bed for three weeks at home, during which time he complained of severe headache, a defective memory and occasional vomiting. He seemed entirely unconcerned about his condition. His vision became decidedly impaired. Three other unconscious spells occurred, each lasting from two to three minutes, and all free from convulsive manifestations. At times dizziness and incoordination became so pronounced that he dared not walk.

The past history was irrelevant.

On neurologic examination the patient appeared quite euphoric and uncooperative. The sense of smell was diminished bilaterally. There were 5 diopters, choking of both disks and numerous hemorrhages in the right fundus. Visual fields could not be determined because of lack of cooperation of the patient. The left seventh nerve showed a supranuclear paralysis. Marked mental deterioration, memory changes and euphoria were present. No aphasic symptoms or sensory changes could be demonstrated. There was a spasticity and weakness of the left extremities.

Dizziness, incoordination and a tendency to fall to the left were present. The Romberg sign was positive. Adiado-

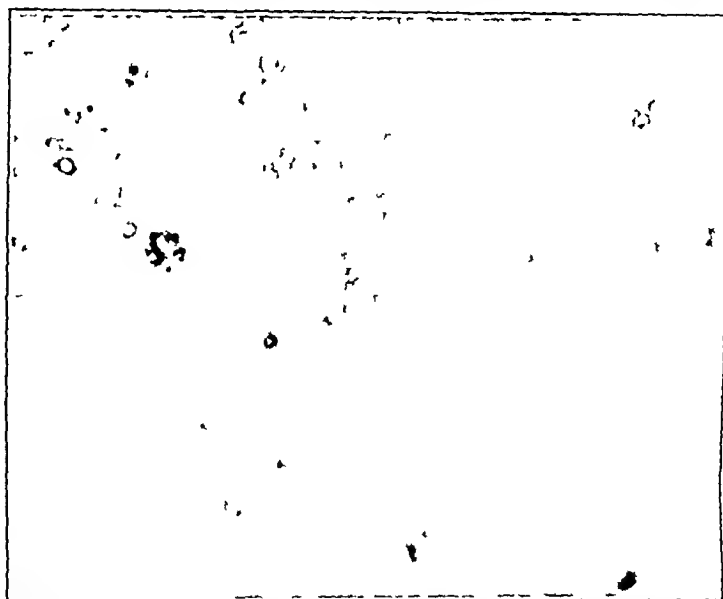


Fig 2—Section through leptomeninges, showing *Torula histolytica* in large numbers. Reduced from a photomicrograph with a magnification of 1,375 diameters.

kinesia was marked in the right upper extremity. There was a coarse, well sustained nystagmus of both eyes.

Abdominal and cremasteric reflexes were absent on the left. The Babinski, Gordon and Oppenheim reflexes were not present. The blood and urine observations were normal. Spinal fluid and blood Wassermann reactions were negative.

A tentative diagnosis was made of a right frontal lobe lesion, and the patient was removed to the hospital, February 11, for diagnostic study and treatment. He continued to complain of severe right frontal pain. His general condition remained about the same. Because of the possibility of an intracerebral hemorrhage and the atypical history of neoplasm, a burr hole was placed in the postfrontal area and the brain explored with a needle. At a depth of approximately 3 cm, definite resistance was encountered. At a depth of approximately 4 cm a dark brown fluid escaped from the needle. About 12 cc of the fluid was drained, which did not yield organisms on culture. Primary smears were reported negative for organisms. Examination of the fluid showed large amounts of bilirubin and biliverdin. It was considered typical of laked blood. The anterior horn of the ventricle was punctured, the ventricular fluid was replaced with air and stereoradiographs were taken.

Ventriculograms showed ventricles of normal contour and location. The day after the operation, the headache subsided. Improvement continued and the patient left the hospital,

From the Departments of Anatomy and Surgery, University of Louisville School of Medicine.

¹ Stone, W. J., and Sturdivant, B. F. Meningo-Encephalitis Due to *Torula histolytica*. Arch Int Med 44: 560-575 (Oct) 1929.

² Stoddard, J. L., and Cutler, E. C. Torula Infection in Man, Monograph 6, Rockefeller Institute of Medical Research, 1916.

Council on Pharmacy and Chemistry

PRELIMINARY REPORTS OF THE COUNCIL
THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING
PRELIMINARY REPORT
PAUL NICHOLAS LEECH, Secretary

DILAUDID

In the past few months a new narcotic drug, dihydro-morphinone hydrochloride, has been introduced for clinical use in this country under the proprietary name "Dilaudid." It is marketed by Bilhuber-Knoll Corp., Jersey City. The drug has been used in Europe for some years, having been patented in 1923. The first paper on its pharmacologic action appeared in 1926 together with a clinical report by Krehl. Since that time numerous articles on its action have been published, at the present time the bibliography of the product numbers some two hundred titles.

Briefly stated, the drug is closely allied both chemically and pharmacologically to morphine, having the analgesic property of morphine as well as its action on the respiratory system. Its action on the intestine is probably less marked than is that of morphine. It is more toxic than morphine and is clinically effective in doses which are considerably smaller than are necessary with that alkaloid.

A most important point to be considered in connection with its use, however, is whether or not its administration is followed by a condition of euphoria which might lead to addiction such as is so common with morphine. It is largely in connection with the latter property that the superiority of Dilaudid over morphine is being urged, it becomes therefore a matter of great importance to ascertain whether this claim to superiority is merited.

The drug was brought to the attention of American clinicians largely by a statement by Alvarez of the Mayo Clinic, published in the *Proceedings of the Staff Meetings* in August, 1932. In discussing the euphoric action of Dilaudid, Alvarez stated that so far as he knew no one had as yet become habituated to its use. Unfortunately, this statement was unwarranted because already at that time a number of cases of addiction to Dilaudid had been reported in the literature. More than once warnings and to the need of caution until more was known of the possible dangers of the drug.

Shortly after Alvarez's remarks were made at the staff meeting, a similar statement appeared in the Associated Press news from "Science Service." This resulted in wide publicity, as it was copied more or less accurately by the press of the country. A few of these statements follow.

From *Collier's* Dec 10, 1932 "Keeping Up with the World," by Freling Foster
A new drug five times as potent as morphine has recently been brought to America from Germany. It is particularly useful in the last stages of cancer because it virtually relieves all pain and permits the patient to be up and working.

From the *Literary Digest* Dec 17, 1932
Five Times as Powerful as Morphine but Harmless

A NEW pain relieving drug which is about five times as potent as morphine without the latter's habit forming quality, was described by Dr. Walter C. Alvarez of the Mayo Clinic at Rochester, Minnesota recently.

To quote a mail report of Science Service (Washington)
"The new drug is Dihydro-morphinone hydrochloride. It was developed in Germany in 1926 by the Knoll laboratories but it is only now being brought to the attention of physicians in this country. It is particularly useful for cases of cancer that cannot be operated on. It gives more relief from pain than morphine and prolongs the useful life of the patient who can be up and working while taking this drug. Of course it is not a cure but it does help the patient by relieving the pain and other symptoms of the last stages of the disease. Dr. Alvarez also suggested that it might be used in treating morphine addiction. Occasionally it may be helpful in the treatment of morphinism through its power to relieve distress while the patient is getting a grip on himself."

The drug does not seem to be dangerous does not produce the pleasurable sensations of morphine and consequently is not habit forming. In a few persons it has some of the troublesome effect but to compensate for this it has none of the troublesome effect on the intestines. The new analgesic is made from morphine hydrochloride with the help of a catalytic agent which causes it to combine with water.

February 22 About three weeks later he was able to return to work.

There were no further disturbances until almost two years later (Feb 7, 1932). The patient had gone to work as usual, feeling well. About midnight, a severe right frontal headache and vomiting incapacitated him. He was removed to the hospital, February 9. The physical examination at this time revealed a good pulse of 80 per minute. The blood pressure was 120 systolic, 80 diastolic. The temperature was 98.8 and respirations were 20. He was dehydrated. There was a definite weakness of both left extremities. The lungs, heart and abdomen were essentially normal. Neurologic examination showed 1 diopter of swelling of both disks, a supranuclear type of paralysis of the left seventh nerve, weakness of the left extremities with hyperactive deep reflexes, and a positive Kernig sign. There was 250 mm of spinal fluid pressure. The fluid was clear, yet a microscopic examination revealed 127 erythrocytes per cubic millimeter, 51 leukocytes and 210 yeast cells. The total protein was 45 mg per hundred cubic centimeters. Globulin and colloidal gold and Wassermann tests were negative. The urine and blood were normal. Roentgenograms of the chest were essentially negative.

At the hospital, the patient complained bitterly of a right frontal headache. The temperature was 99.4. The pulse was 80 and respirations were 20. February 10, the patient had a convulsion, which began on the left side and became generalized. He remained unconscious for twenty-five minutes. February 11, 50 cc. of ventricular fluid was withdrawn and replaced with 20 cc. of air. These ventriculograms showed the lateral ventricles to be of normal position and contour except for an irregular collection of air in the right parietal lobe that seemed to connect with the right ventricle. This was interpreted as a small cyst that had ruptured into the ventricle. Various anodynes and hypnotics were used. Sodium iodide, 10 cc of a 10 per cent solution, was given intravenously on three successive days. Spinal puncture would relieve the headaches to some extent, but the patient's condition continued to grow worse. February 14, about 2 ounces (60 cc.) of dark sanguineous fluid was drained by needle from the parietal region. A section was taken for study, including leptomeninges and cortex. Convulsions increased, the patient became irrational and died, February 21. A necropsy was refused.

The microscopic sections of tissue specimen showed a proliferation of connective tissue cells in the pia, a few lymphocytes and numerous torulae. The protoplasm of the organisms stained pink with eosin and contained a mass of irregular dark granules. Budding forms were common. The torulae varied from 2 to 12 microns in diameter. Many were surrounded by a clear zone. There were no polymorphonuclear leukocytes in the tissue.

COMMENT

In this case marked temperature increase was never a prominent symptom, and during the first two years of infection the condition remained localized, only once giving symptoms of a focal nature. These symptoms were due apparently to an accumulation of fluid in the postfrontal region. When the fluid was removed, the symptoms promptly disappeared. Two years elapsed before progress of the infection was sufficient to give further symptoms, which, at this time, appeared as meningeal as well as focal cerebral symptoms. The infection had slowly progressed and invaded the meninges when the organism was found in the spinal fluid.

The World Beyond the Unaided Eye—Leeuwenhoek was not without honor during his lifetime. Scientists and nobility came to Delft to see this man of the microscopic world. Peter the Great of Russia, Queen Mary of William and Mary, Frederick I of Prussia and others stopped in Delft to call on Leeuwenhoek. Like the public of today these rulers of the seventeenth century were impressed with the scientific developments of their day. They were curious to know what lies in the world beyond the unaided eye of man. Leeuwenhoek made many microscopes the exact number is not known although he left 247 not only with lenses but usually with objects in place. He also left 172 plates with one lens in each or a total of 419 lenses.—Fred E B Antony Van Leeuwenhoek on the Three-Hundredth Anniversary of His Birth *J. Bacteriol* 25 1 (Jan) 1933

From the *Montgomery (Ala.) Advertiser*, Dec 18, 1932

"AN IMPORTANT NEW DRUG"

"Di hydro morphinone hydrochlorid

"That's it The Mayo Clinic at Rochester developed it, the word and the drug, for it means a drug, a pain relieving drug, five times as potent as morphine, as harmless as water and with no habit forming qualities

"The medical journals say it is particularly useful in the operation of cases where other drugs seem to offer no relief from pain. Unlike morphine, there are no pleasurable sensations to its use, however, and if the doctors reckon correctly its use may go far toward curing addicts of the morphine habit"

As a result of this wide publicity, many inquiries were received by the Association and by the Council. These came not only from physicians but also from laymen. Persons who were suffering from pain but feared to take morphine were especially interested, as now they were promised a drug which was reputed to be "harmless as water", and even in cases of advanced cancer it was said that it would prolong their lives and permit them to return to work once more.

Realizing the importance of furnishing accurate information in this case both to the profession and to the laity, the Council asked Dr. Nathan B. Eddy of the Department of Pharmacology of the University of Michigan to make a report to the Council on the general status of the alkaloid. It seemed especially fitting that Dr. Eddy should be asked to report on this question because, as is well known, Dr. Eddy is engaged on a study of the action of possible substitutes for morphine under funds supplied by the Rockefeller Foundation to the Drug Addiction Committee of the National Research Council.

Dr. Eddy's report on the literature and on the results of his experiments with Dilaudid appears below. The report has been reviewed by the Council and is published with its approval and with its thanks to Dr. Eddy for the preparation of the report.

The Council has postponed for a reasonable length of time the consideration of Dilaudid with the view of determining its eligibility for inclusion in New and Nonofficial Remedies in order to give the manufacturer opportunity to submit it and to revise the advertising in conformity with the available evidence.

DILAUDID (DIHYDROMORPHINONE HYDROCHLORIDE)

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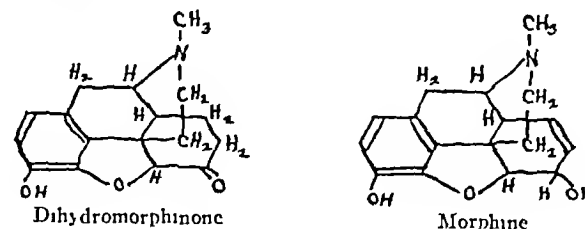
Dilaudid (di-hydromorphinone hydrochloride) was first described in the German patent literature of 1923,¹ and after a very brief pharmacologic study² was given to a number of clinics for trial, the first report of its use appearing in 1926.³ Since then, the German clinical literature has contained many references to it, and recently two papers on the subject have appeared in English journals, so that at the present writing a complete bibliography would number nearly 200 titles. As reported in the *Lancet*,⁴ the Committee of Experts, appointed in May, 1931, by the Council of the League of Nations to consider the advantages and disadvantages of heroin (diacetylmorphine) and the possibility of substituting some other substance for it, briefly summarized the situation in regard to dilaudid as follows: "For the relief of pain in patients in whom it is undesirable to act on the bowels, heroin is better than morphine but dilaudid offers the same advantages. Dilaudid has a slightly weaker effect on the respiratory center than heroin, it has the same analgesic effect as heroin, both drugs have little effect on the alimentary canal. The euphoric effects of dilaudid are weaker than both morphine and heroin as gaged by withdrawal symptoms."

Chemically, dilaudid is dihydromorphinone hydrochloride. Its relationship to morphine is shown by their structural formulas. It differs from morphine in two respects: replacement of one of the hydroxyls by a ketonic oxygen, and removal of an adjacent double bond by hydrogenation. The substance is prepared by hydrogenation of morphine in warm strongly acid solution in the presence of a large excess of palladium or

platinum catalyst. It is a white crystalline powder readily soluble in water, it contains 88.7 per cent of alkaloidal base.

REVIEW OF CLINICAL EXPERIENCE

Dilaudid has been used by all the usual modes of administration—oral, rectal, subcutaneous and intravenous—and by all the routes the most commonly employed dosage has been from 2 to 25 mg. Some authors have found larger doses necessary, and a few have reported results with less. Nearly all of them, however, have commented on the early development of effects, stating that relief of pain, for example, was accomplished within from ten to fifteen minutes, whatever the mode of administration.



Structural formulas

Reported dosages have ranged from 1 to 75 mg for a single administration, with 25 mg as the maximum for twenty-four hours. Freundlich⁵ gave 5 mg as the usual preanesthetic dose, while Ditttrich⁶ found 25 mg satisfactory for the same purpose. Lullies,⁷ reporting the use of dilaudid in more than 1,000 surgical cases, said that 2 mg was usually not sufficient but that 3 or 4 mg was given subcutaneously or from 25 to 5 mg by rectum. Simenauer and Pulfer⁸ also reported that from 2 to 3 mg had a negligible analgesic action, that 4 mg decreased and abolished pain, but that two doses of 4 mg was the highest daily dosage they had used. Grage,⁹ on the other hand, used 2 mg orally or 25 mg subcutaneously in tabetic crises and said that 1 mg was sometimes sufficient.

Krehl,³ Paulsen,¹⁰ Schwarz,¹¹ Crohn,¹² Klemperer,¹³ Markowicz,¹⁴ Paepfer,¹⁵ and others reported favorably on the use of dilaudid in the treatment of cough, especially in tuberculosis. They gave from 125 to 75 mg and repeated the larger doses three times or the smallest amount as often as ten times a day.

Some clinicians have attempted to evaluate dilaudid by determining its dosage and that of morphine which gave equivalent results, as shown in the accompanying table. In

Equivalent Doses of Dilaudid and Morphine

Author	Dilaudid, Mg	Morphine, Mg	Reason for Administration
Basch ¹⁶	2	10	Pain
Hemmerling ¹³	5	10-20	All purposes for which morphine would have been given
Krüskenper ²³	5	10-20	Pain
von Werthern ¹⁰	5	10-20	All purposes for which morphine would have been given
Birkholz ²⁰	2	10	Preliminary to anesthesia
Loewenthal ²³	2-2.5	10	Cough
von Oettingen, München med. Wchnschr. ⁷⁴	2	10	Preliminary to anesthesia
1184 (July 15) 1927			
von Hoesslin ²¹	2	20	All purposes for which morphine would have been given
Simenauer and Pulfer ⁸	4	10	Preliminary to anesthesia

addition, Bescht¹⁰ said that the effect of dilaudid on the central nervous system of man was the same as that of morphine but

- 5 Freundlich, E. *Fortschr. d. Med.* **45** 137 (Aug 5) 1927
- 6 Ditttrich, Alfred. *München med. Wchnschr.* **73** 863 (May 21) 1926
- 7 Lullies, Gertrud. *München med. Wchnschr.* **76** 1463 (Aug 30) 1929
- 8 Simenauer, Erich, and Pulfer, Hans. *Deutsche med. Wchnschr.* **55** 147 (Jan 25) 1929
- 9 Grage. *Deutsche med. Wchnschr.* **53** 1979 (Nov 18) 1927
- 10 Paulsen, Ernst. *Deutsche med. Wchnschr.* **53** 1516 (Sept 2) 1927
- 11 Schwarz, Alexander. *Zentralbl. f. inn. Med.* **49** 173 (Feb 25) 1928
- 12 Crohn, W. H. *Med. Klin.* **25** 477 (March 22) 1929
- 13 Klemperer, Felix. *Therap. d. Gegenw.* **70** 331, 1929
- 14 Markowicz, Walter. *Schweiz. med. Wchnschr.* **59** 438 (April 20) 1929
- 15 Paepfer, T. *Therap. d. Gegenw.* **70** 330, 1929
- 16 Bescht, Erich. *Med. Klin.* **23** 1582 (Oct 14) 1927

From the Laboratory of Pharmacology of the University of Michigan Medical School

- 1 Knoll and Co. D. R.—p. 365683, *Jahresber. chem. Tech.* **49**, II, 1923
- 2 D. R.—p. 380919, *Jahresber. chem. Tech.* **49**, II, 122 1923
- 3 Gottlieb, R. *München med. Wchnschr.* **73** 595 (April 9) 1926
- 4 Krehl, L. *München med. Wchnschr.* **73** 596 (April 9) 1926
- 5 Report of League of Nations Committee of Experts. *Lancet* **2** 55 (July 4) 1931

that the effective dose was only from one third to one fourth as great, and according to Schwarz,¹¹ dilauidid fully replaced morphine in tuberculosis in one-tenth to one-fifth the dosage.

All of these comparisons were of the effect of the administration of single doses. In reference to the repeated use of dilauidid, the absence of tolerance has been reported frequently. In most cases, however, the author has said simply that in his experience he had not seen any evidence of tolerance or any necessity for increasing the dose and has not given details of the dosage, the duration of administration or other pertinent data of cases in which he believed tolerance had not occurred. There are a few partial exceptions to this general statement.

Fürst¹⁷ reported a case in which 5 or 10 mg was given daily for four months. Hemmerling¹⁸ gave a patient with sciatica 5 mg of dilauidid every other night and obtained analgesia of eleven hours' duration. At the end of four weeks the analgesia lasted from nine to ten hours. In another case, reported by the same author, after tolerance to morphine had been established, 75 mg of dilauidid gave ten hours sleep. At the end of six weeks the ten hours sleep was still obtained with the same dosage. However, that such an observation as the last mentioned establishes absence of tolerance is exceedingly doubtful. In a third case, one of cardiac decompensation, Hemmerling substituted 5 mg of dilauidid for 10 mg of morphine and said that that dosage continued effective during a period of four weeks. Von Werthern¹⁹ said that he had seen no occasion to increase the dose of dilauidid in repeated administration but was not willing to commit himself on the question of tolerance because his experience had been too brief. Von Hilger²⁰ reported that he had given for relief of pain eighteen 25 mg tablets weekly for a year without increasing the dose. Bescht¹⁰ stated that there was no tolerance established with small doses, from 2 to 25 mg, in several weeks (periods of twenty-four, thirty-one and thirty-seven days are mentioned) but that he had seen definite tolerance to larger, euphoric doses, 4 mg. Zahler²¹ reported that analgesic action did not diminish much during periods for which dilauidid was commonly employed and that there was no necessity for increasing the dosage. He cited a case in which the same dose continued to be used during six months for the relief of pain, though the quieting effect of the drug disappeared within three weeks. He said also that the respiratory center did not show habituation. In a later paper, Zahler²² described in general terms without details the changes in the blood sugar and blood calcium after single and repeated doses of morphine and dilauidid. The latter produced the same type of changes as the former, though the rates at which the changes were established were different. Crohn,¹² Klemperer¹³ and Paepfer¹⁵ each referred to the necessity of increasing dosage in persistently chronic and severely painful conditions.

In connection with these direct statements in regard to tolerance to dilauidid, there should be taken into account specific observations on the effective dosage of the drug in the presence of morphine tolerance. For example, Fürst¹⁷ reported an effective daily dose of from 5 to 10 mg after tolerance to from 10 to 20 mg of morphine had developed. Hemmerling¹⁸ said that 75 mg gave ten hours' sleep to a cardiac patient to whom after many weeks' use 20 mg of morphine gave only four or five hours' sleep. Kruskemper²³ described a patient, who, after receiving 70 mg of morphine four times a day, was relieved by 10 mg of dilauidid four times a day. Trautmann²⁴ reported that, after the development of morphine tolerance, 60 mg of morphine or 10 mg of dilauidid gave relief from pain for only two or three hours. Von Werthern,¹⁹ stating that 2 mg was the usual analgesic dose of dilauidid, gave 5 or 6 mg when 20 mg of morphine was required or when an individual was tolerant to 20 mg of morphine. Hartung,²⁵ who used 2 mg subcutaneously in painful conditions, found that 4 mg was required for patients who had been taking other narcotics

of this class. Loewenthal²⁶ gave from 6 to 8 mg to a patient who was tolerant to 80 mg of morphine and continued this dose for a month without further increase. Paulsen¹⁰ found that 2 mg of dilauidid three times a day controlled pain, cough and restlessness for many weeks after a tolerance had been established to 30 mg of morphine. Von Hoesslin²⁷ reported that, in the presence of tolerance, 4 mg of dilauidid and 40 mg of morphine, in one case, and 6 mg of dilauidid and 100 mg of morphine, in another case, gave the same results. Possibly of especial significance is the statement of Grage⁹ that he used dilauidid satisfactorily during the slow withdrawal of morphine. He did not record the dosage employed. It will be noted that some of these references are to authors who denied that dilauidid produced tolerance.

While the statements quoted tend to show that tolerance to small doses of dilauidid develops slowly, if at all, there is no doubt that cross tolerance has been demonstrated, the ratio of effective single doses was approximately the same whether or not tolerance to morphine had developed. It is seriously questioned whether in the long run dilauidid and morphine will be found to differ in their tolerance inducing properties.

Tolerance and addiction are intimately associated in the use of morphine, but the two are not necessarily concomitant, and observations that permit a conclusion in regard to the one do not of themselves imply the same conclusion in regard to the other. The authors reporting on the use of dilauidid have had relatively little to say about the danger of addiction. Most of them at the time of their report had had but a few months' to a year's experience in its use. A few commented on the presence or absence of euphoria, a symptom or condition which, if produced by the drug, would favor development of addiction.

Bescht¹⁰ There was no euphoria with from 2 to 25 mg, but it did occur after 4 mg. Grage⁹ The euphoria was different from that of morphine and in his opinion was dependent on the relief of pain. Zahler²¹ Usually there was no euphoria with doses sufficient to relieve pain, but a dose of 5 mg was strongly narcotic and euphoric. Bender,²⁸ Markowicz,²⁴ Simenauer and Pulfer.⁸ Dilauidid did not produce euphoria. Lullies.⁷ In fresh postoperative cases the narcotic and euphoric actions of other morphine preparations failed almost entirely after dilauidid. Rödel.²⁹ Slight euphoria followed the administration of 2 mg intravenously. Leyton.³⁰ Euphoria occurred in some cases. Alvarez.³¹ Euphoria was much less marked with dilauidid than with morphine. The last statement, however, seems to be based as much on impressions from the literature as on personal experience. Alvarez said in the same sentence with the remark in regard to euphoria that so far as he could learn no one had as yet become habituated to its use. This review of the literature shows that Alvarez evidently overlooked many instances of addiction that had been reported.

Trautmann²⁴ reported that he had seen no craving for the drug but added that his experience was not sufficiently extensive. Behlau³² in 1927 said "We must still think that in spite of the relative nontoxicity of dilauidid we have to do with a morphine preparation." Grage⁹ maintained that tolerance and addiction to dilauidid could occur. He cited two cases and remarked that the addiction was not as severe as after morphine and was more easily cured. Muller de la Fuente³³ reported a case of addiction of a year's duration. The dose had been increased from six or eight to fifteen or eighteen 2 mg ampules a day. Wolff,³⁴ in 1928, received 280 replies to questionnaires concerning addiction, in eight of which addiction to dilauidid was reported. In a later discussion of these replies Wolff³⁵ said that the report of addiction by eight observers was of special importance because at the time dilauidid was but little used. He added that the pharmacologic similarity of dilauidid to morphine made addiction to it readily understandable and that indeed it possessed a high degree of addiction property. In another place, Wolff³⁶ also mentioned

17 Fürst Kurt Med. Klin 22 1306 (Aug 20) 1926
18 Hemmerling H. München. med. Wchnschr 73: 597 (April 9) 1926
19 von Werthern Med. Klin 22 1229 (Aug 6) 1926
20 von Hilger A. Fortschr. d. Med. 45 215 (Aug 26) 1927
21 Zahler, Heinrich Deutsche med. Wchnschr 54 1596 (Sept. 21) 1928
22 Zahler Heinrich Deutsche med. Wchnschr 56 522 (March 28) 1930
23 Kruskemper C. Klin Wchnschr 5 1397 (July 23) 1926
24 Trautmann Edgar München med. Wchnschr 73 1747 (Oct. 15) 1926
25 Hartung, Curt München med. Wchnschr 74 282 (Feb 18) 1927

26 Loewenthal, M. Therap. d. Gegenw 68 429 (Sept.) 1927
27 von Hoesslin H. Klin Wchnschr 9 1382 (July 19) 1930
28 Bender Psychiat. neurol. Wchnschr 31 261 (May 25) 1929
29 Rödel Walther Therap. d. Gegenw 71 238 1930
30 Leyton O. Lancet 1 835 (April 16) 1932
31 Alvarez, W. C. Proc. Staff Meet., Mayo Clin 7 480 (Aug 17) 1932
32 Behlau C. München. med. Wchnschr 74 1131 (July 8) 1927
33 Müller de la Fuente Med. Klin 23 519 (April 8) 1927
34 Wolff Paul Deutsche med. Wchnschr 54 7 (Jan. 6) 1928
35 Wolff Paul Deutsche med. Wchnschr 54 224 (Feb 10) 1928
36 Wolff Paul Deutsche med. Wchnschr 54 134 (Jan 27) 1928

the satisfactory use of dilaudid in the treatment of morphine addiction. In his lecture on drug addiction before the Eighty-Third Annual Session of the American Medical Association, delivered at New Orleans, May 9, 1932, Wolff said "Dihydromorphinone has also proved valuable. It is often better tolerated and has the particular advantage that it depresses peristalsis less than morphine (hence its use after abdominal operations). Further, it has been shown both experimentally and clinically that it leads more slowly to habituation and addiction and its devotees are more easily cured."³⁷

Zahler,²¹ whose statements in regard to repeated doses have been quoted, claimed that in no case was there any difficulty in stopping the drug if dilaudid alone was taken. Paepfer¹⁶ reported that during a year and a half no abstinence symptoms had been observed. Von Hoesslin⁷ affirmed that, in regard to addiction, individuals vary with morphine and with dilaudid as well, and added, "Without doubt in many cases there is a marked tendency to addiction with dilaudid." Richtzenhain,³⁸ discussing the use of dilaudid and dicodid in nervous diseases, said that he had seen one case of addiction, although tolerance had never occurred, and in an appended footnote he said "I feel it my duty to add a word of caution. Dilaudidism and dicodidism are both already so often observed that we should be as cautious with the injection of dilaudid and dicodid as we have been with morphine injections." Leyton³⁰ in 1932 was unable to state from his own experience whether or not addiction would be produced.

Practically every clinical paper reporting the use of dilaudid makes some reference to its side actions in comparison with those of morphine. Many³⁹ have said that no side actions at all were observed, while others⁴⁰ admitted the infrequent occurrence of nausea, vomiting, dizziness and headache. Nearly all are agreed that nausea and vomiting are of much less common occurrence after dilaudid than after morphine. In a few cases it has been reported⁴¹ that a patient who had previously vomited after morphine did not vomit after dilaudid. Alvarez³¹ stated "Our impression is that nausea is produced more commonly with dilaudid than with morphine, but as yet we have not enough experience to be sure of this." At the time this statement was made the experience of the Mayo Clinic in this regard was of six months' duration.

All observers who mention the matter at all agree that dilaudid showed less tendency to produce constipation than did morphine. Kaiser⁴² reported that dilaudid as well as morphine increased the contraction of the vesical sphincter leading to cramp of the bladder, the resulting tenesmus requiring the use of the catheter.

A few papers⁴³ have commented specifically on the respiratory effects of dilaudid and especially on the danger of respiratory paralysis. Krehl,³ Hemmerling¹⁵ and Trautmann²⁴ reported that in exceptional cases 5 mg had slowed respiration to such an extent that respiratory stimulants were administered. Winternitz⁴³ said that dilaudid was somewhat more actively depressant than morphine to the respiratory center in man. Taterka and Pineas,⁴³ on the other hand, considered that there was less danger of respiratory paralysis in tabetic crises with dilaudid than with morphine, and Zahler²¹ thought that the effect on respiration with large doses would militate against the abuse of dilaudid.

REVIEW OF EXPERIMENTAL WORK

The experimental basis for the rather extensive clinical trial of dilaudid, which I have endeavored to review briefly, was very meager. In his report of the first experiments with the

substance, Gottlieb² said that in frogs from 0.5 to 1.0 mg caused cerebral narcosis followed by tetanic convulsions, that in dogs 4 mg produced narcosis and analgesia, and that in rabbits from 0.2 to 0.3 mg per kilogram reduced the respiratory minute volume to one half. He concluded that, as regards analgesia, respiration and narcosis in dogs, dilaudid was similar to morphine except that only one-half to one-fourth the dose by weight of dilaudid was needed. From experiments on rabbits, he concluded that the respiratory mechanism became tolerant to morphine but not to dilaudid. He gave daily injections of 1 mg of morphine per kilogram to each of two rabbits and 0.3 mg of dilaudid per kilogram to each of four others. About once a week the respiratory rate of the rabbits was studied. The animal was kept quiet in a small box for an hour or more. Then the respiratory rate was followed for about twenty minutes. The drug was injected subcutaneously and the respiratory rate followed for an hour. The animals receiving morphine were observed for twenty-nine days. On the first day the respiratory rate decreased from 39 to 30 and on the twenty-ninth day it increased from 43 to 53. Concerning the latter, the author said that the variation might lie within the limits of error of the method. If that was so, the initial decrease might also lie within the limits of error. Furthermore, I have shown⁴⁴ that the minimal effective dose of morphine to produce consistent decrease in respiratory rate in rabbits is 2 mg per kilogram, and van Dongen⁴⁵ demonstrated in 1915 his inability to obtain habituation to morphine of the respiratory mechanism of the rabbit. With dilaudid, Gottlieb obtained a 25 to 30 per cent decrease in respiratory rate at each observation throughout the experiment. These results support the contention that tolerance to dilaudid does not occur but they do not prove that tolerance to morphine did occur.

Joel and Ettinger⁴⁶ reported that in rats the intoxication picture of dilaudid was practically identical with that of morphine. Two milligrams of the former per hundred grams caused a two to four hour narcosis followed by an excitation stage. In animals in which a tolerance to morphine had been developed, 2 mg of dilaudid per hundred grams caused only the excitation. The authors concluded that a tolerance to dilaudid to the extent of a disappearance of the narcotic stage could be developed in rats.

Nau⁴⁷ performed a few comparative experiments on tadpoles, frogs, toads and fishes with dilaudid, morphine and heroin. All three paralyzed the central nervous system and were convulsant relatively in about the same degree as they were narcotic. All three paralyzed the frog's skeletal muscle and the toad's heart. In this respect dilaudid was twice and heroin was eight times as powerful as morphine.

Seeliger³⁰ injected morphine or dilaudid subcutaneously in rabbits with an abdominal window in order to observe their effect on peristalsis. Sufficient analgesia was produced by dilaudid to permit him to perform the operation for the insertion of the window without the use of another anesthetic. Peristalsis reappeared after morphine in from fourteen to sixteen hours, and after dilaudid in six hours. Unfortunately, the author did not state the doses used.

Schoen⁴⁸ injected dilaudid intravenously in rabbits in doses of from 0.5 to 50 mg per kilogram. One milligram per kilogram slowed the respiration, abolished the response to pain and abolished postural reflexes. General muscular tone was increased. Fifty milligrams per kilogram caused periods of extreme depression followed by periods of marked irritability. Two milligrams per kilogram subcutaneously had the effect of 1 mg intravenously.

Schmitt⁴⁹ gave dilaudid subcutaneously two or three times at intervals of seven days to each of twenty-two dogs. Five milligrams per kilogram caused emesis three times in fifty experiments. It slowed the heart, decreased the temperature and decreased sensitivity but did not induce sleep. With 10 mg per kilogram the effect was greater but its duration was not prolonged. The effect in young dogs was less prolonged than

37 Wolff, Paul. Drug Addiction—A World Wide Problem, J A M A. 98: 2175 (June 18) 1932.

38 Richtzenhain. Therap d Gegenw 71: 431, 1930.

39 Behlau³², Birkholz. Deutsche med Wchnschr 53: 323 (Feb 18) 1927.

Crohn¹², Grage⁶, Hartung³, Von Hilger²⁰, Loewenthal²⁰.

Paepfer¹⁶, Rady, Hilar. Med Klin 22: 738 (May 7) 1926.

Schneider. Albert. Therap d Gegenw 71: 239, 1930.

Schubert, M. Deutsche med Wchnschr 56: 834 (May 16) 1930.

Seeliger, P. Wien klin Wchnschr 40: 495 (April 14) 1927.

40 Alvarez³¹, Basch. Fortschr d Med 44: 622, 1926.

Bender²⁸, Dielmann, Hans. Med Klin 22: 1929 (Dec 10) 1926.

Ellerau. Klin Wchnschr 5: 2430 (Dec 17) 1926.

Freundlich⁸, Fürst¹⁷, Klemperer¹³.

Krehl³, Kruskemper²³, Leyton³⁰, Lullies⁷, Richtzenhain³⁸.

Schwarz¹¹, Simenauer and Pulfer⁸.

41 Dielmann⁴⁰, Loewenthal²⁰.

42 Kaiser, K. Klin Wchnschr 6: 1687 (Aug 27) 1927.

43 Krehl³, Hemmerling¹⁵, Trautmann²⁴, Zahler²¹, Von Hoesslin⁷.

Taterka, Hans, and Pineas, Hermann. Nervenarzt 1: 543 (Sept 15) 1928.

Winternitz, H. Deutsche Med Wchnschr 55: 480 (March 22) 1929.

44 Eddy, N B. J Pharmacol & Exper Therap 45: 339 (July) 1932.

45 van Dongen. Arch f d ges Physiol (Pflüger's) 162: 54, 1915.

46 Joel, Ernst, and Ettinger, Alice. Arch f exper Path u Pharmacol 115: 334, 1926.

47 Nau, F A. Inaug Diss, Marburg 1930.

48 Schoen, Rudolf. Arch f exper Path u Pharmacol 146: 84, 1929.

49 Schmitt, Joseph. Arch f wissenschaft u prakt Tierh 50: 565 (June 18) 1929.

that in older animals. An intravenous dose of 25 mg had the same effect as 5 mg subcutaneously.

Haffner⁵⁰ studied the analgesic action in mice of a large series of compounds. A clamp was placed on the tail and the extent of the pain reflex was noted. The minimal effective dose to produce complete analgesia was 0.0075 mg of morphine per gram of body weight, 0.0037 mg of heroin per gram, and 0.005 mg of dilaudid per gram.

Weiss⁵¹ described a new method for estimating analgesic action in rabbits by the prolongation, when morphine or an allied substance was injected intravenously, of the local anesthesia of the cornea produced by procaine hydrochloride. Measured in this way, the analgesic effect of from 2 to 4 mg of dilaudid was equivalent to that of from 8 to 20 mg of morphine.

In a more complete study than any made previously, Osman⁵² investigated the action of dilaudid on frogs, guinea-pigs, rabbits and dogs. He described a typical morphine picture for its action in frogs and in dogs and rabbits. The fatal dose for the frog lay between 200 and 400 mg per kilogram. In the dog, initial restlessness with vomiting and salivation was followed by depression, extreme muscular weakness, somnolence and analgesia, with marked slowing of the respiration. The depression was succeeded by a convulsant stage with exaggerated reflexes. The fatal dose for the guinea-pig was from 300 to 350 mg per kilogram and for the rabbit 200 mg per kilogram.

Osman studied in some detail the action of dilaudid on the respiration, the circulation and the central nervous system. He noted in rabbits a very marked slowing of the respiratory rate which was in part compensated for by an increase in depth, so that, with a decrease in rate to 15 per cent of the original, the minute volume was reduced to about one half. Dilaudid had little effect on the circulation, producing a slowing of the heart of central origin and only a slight fall in blood pressure. The analgesic dose for the rabbit was from 0.5 to 1 mg per kilogram, and as a sleep producer Osman considered dilaudid superior or always at least equal to morphine.

Finally, with himself as the subject, Rommelt⁵³ conducted a series of psychologic studies after the subcutaneous administration of dilaudid in a dosage of 3 mg. He reported that the drug produced definite depression of mental activity, and he discussed in considerable detail the factors involved. There was no euphoria, rather a growing distaste for the injections. Nausea and vomiting occurred, but no constipating action was observed. The effect of the drug was noticeable on the day following the injection.

PRELIMINARY REPORT OF PHARMACOLOGIC STUDY

Dihydromorphinone represents a comparatively simple type of change in the morphine molecule, one of the types of change included in the program of systematic chemical and pharmacologic study which has been instituted by the Drug Addiction Committee of the National Research Council. The study of this particular substance was begun in July, 1932. In this case the product was supplied through the courtesy of the Billhuber-Knoll Corporation to Dr. Small's laboratory, the chemical unit at the University of Virginia of the Drug Addiction Committee's organization, from which, after preliminary chemical study, it was sent to the pharmacologic unit at the University of Michigan. Our investigation of the substance is still incomplete, but it has progressed to a point at which a preliminary statement of our results can be made.⁵⁴

Our work has included the determination of the toxicity of dilaudid for mice and young rabbits, the intramuscular administration of the substance to cats for observation of analgesic and emetic actions, the subcutaneous administration to rabbits for a study of respiratory effects, and some experiments on intestinal action in dogs and rabbits. The methods employed have been fully described elsewhere.⁵⁵

As previously noted,⁵⁶ the toxic picture of dilaudid was very similar to that of morphine in both mice and rabbits, but the

fatal dose was much smaller and the convulsant action, as represented by the relation of the minimal convulsant dose to the average fatal dose, was greater. Dilaudid was more than six times as toxic as morphine for mice and more than three and a half times as toxic as morphine for rabbits, which is a higher degree of toxicity than that reported by Osman.⁵²

The minimal analgesic dose in cats of dihydromorphinone was only 0.17 mg per kilogram, or less than one-fourth the minimal analgesic dose of morphine (0.75 mg per kilogram) and about one-third the minimal analgesic dose of heroin (0.52 mg per kilogram). Cats have been seen to vomit with as little as 0.1 mg of dilaudid per kilogram and with 0.5 mg of morphine per kilogram, while none of the animals that received heroin have vomited. In dogs, vomiting has been seen after 0.05 mg of dilaudid per kilogram injected subcutaneously, although our dogs have rarely vomited after ten times that amount of morphine.

Dilaudid, like morphine, caused excitement in the cat, but an amount slightly greater than the minimal analgesic dose was required to bring this about. With morphine, analgesia and excitement were produced by the same dose. Possibly this difference indicates a higher degree of selective analgesic action in dilaudid.

In our experiments on rabbits, dilaudid has exerted a very powerful depressing influence on respiratory activity. One-tenth milligram per kilogram of the salt, dihydromorphinone hydrochloride, had as great an effect on respiration as 2 mg per kilogram of morphine hydrochloride, and a greater effect than 0.1 mg per kilogram of heroin. The respiratory rate and minute volume were decreased and the response of the mechanism to inhalation of carbon dioxide or of ammonia was less than normal. Oxygen consumption was little if at all affected by the 0.1 mg dose of dilaudid.

Dilaudid slowed the heart of the rabbit materially. In dogs also it had a very marked effect on the heart rate, producing definite slowing when as little as 0.05 mg per kilogram was injected subcutaneously. In both dogs and rabbits the drug had a pronounced general quieting effect.

In regard to intestinal activity, the minimal dose that would suppress intestinal evacuation in the rabbit was determined and a few experiments have been performed on dogs with Thury-Vella loops. In rabbits, the constipating dose of dilaudid was less than one-fourth that of morphine, while in dogs the same dose of each drug produced the typical modification of intestinal activity, particularly the increase in tone of the small intestine, characteristic of the action of morphine. Our experimental observations afford no explanation of the relatively weak constipating action of dilaudid reported clinically.

It should be understood that there are still many gaps in the experimental work on dilaudid, of which perhaps the most important are in relation to the questions of tolerance and addiction. We propose to undertake the investigation of these properties and to continue our study of the intestinal and emetic effects of the drug, as well as to endeavor to determine quantitatively its relation to morphine in sleep-promoting power. In the meantime, it would seem wise to delay the too rapid spread of the clinical use of the substance until the knowledge of its pharmacologic action is more complete.

CONCLUSIONS

It has been shown experimentally and clinically that dilaudid is powerfully analgesic and that, like morphine, it can depress the respiratory mechanism profoundly. At the same time, the experimentally established ratio between effective doses of morphine and dilaudid for the production of desirable effects is not materially different from the ratio between their toxic doses. *Clinical trial has not shown that dilaudid is free from tolerance and addiction evoking properties and while side actions such as nausea vomiting and constipation seem to occur less frequently after it than after morphine, the prolonged administration of dilaudid should be entered on with as much caution as would be exercised with morphine itself.*

The references that have been given are believed to be complete so far as experimental work on dilaudid is concerned, and it is considered that the selection of clinical papers fairly represents published clinical opinion. I was assisted by Dr. H. M. Krueger in the review of the literature and also in the experiments on dogs while the experiments on respiration were carried out by Dr. Charles I. Wright.

⁵⁰ Haffner F. Deutsche med. Wchnschr. 55 731 (May 3) 1929
⁵¹ Weiss Alfred. Arch. f. exper. Path. u. Pharmacol. 167 177 1932

⁵² Osman Mehmed. Doktor Diss. Geneva 1930
⁵³ Rommelt W. Psychol. Arb. 9 435 (Feb. 20) 1928

⁵⁴ This investigation was supported by a grant from the Committee on Drug Addiction of the National Research Council from funds provided by the Bureau of Social Hygiene, Inc. and the Rockefeller Foundation.

⁵⁵ Eddy (footnote 44) J. Pharmacol. & Exper. Therap. to be published.
⁵⁶ Gottlieb J. Osman.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, APRIL 1, 1933

THE JOURNAL AND MEDICAL JOURNALISM

A STATEMENT BY THE BOARD OF TRUSTEES

Seldom in the past has space been utilized in THE JOURNAL to extol its own merit. Indeed, there has been little if any need for doing so. The increase in circulation, the material submitted for publication, the readiness with which subscribers have renewed their subscriptions, have been ample indication of their appreciation of what THE JOURNAL offers. During the last year, however, the world has been passing through what even optimists call a predicament. Great industries, to maintain sound financial status, have slashed their budgets, discharged employees, and in various other ways attempted to make both ends meet—financially. In the face of this situation the American Medical Association has carried on superlatively. THE JOURNAL has not lowered the standards that have brought it to its present high place in the field of medical journalism. It has not decreased the number of pages of reading matter in a volume. It has not raised its price to meet changing conditions and lowered income from advertising. Through efficient management it continues to develop sufficient income to carry on the multitudinous activities of the American Medical Association, although the margin now reached is barely in excess of those demands. In the face of this situation, nevertheless, a considerable number of physicians have begun the annual demand for a lowering of the price of subscription. In this connection it is interesting to report the results of several recent surveys of medical bibliography and of the place of THE JOURNAL in the medical bibliographic field.

The problem of the physician who subscribes to medical publications is to secure the maximum of usefulness with the funds available. There are published in the world today approximately eighteen hundred medical periodicals. Every one will grant that some of these are useless if not detrimental. Periodicals published by manufacturers of proprietary medicines, organs for propaganda issued by fly-by-night medical organiza-

tions, inferior publications issued merely to produce revenue from unacceptable accessories in the field of medical practice, hardly merit the name of medicine or of science in their titles. The *Quarterly Cumulative Index Medicus* indexes more than twelve hundred medical periodicals. In 1927, eminent librarians developed a method for determining the usefulness of a publication. They tabulated the references to it that appeared in a group of prominent publications issued throughout the world. R. L. Jenkins¹ undertook such a survey in the medical field and found that a study of the references in the *British Medical Journal*, the *Klinische Wochenschrift* and THE JOURNAL indicated that ten periodicals contained 35 per cent of the total references. THE JOURNAL led all other medical periodicals by far. Moreover, only 7 per cent of all bibliographic references antedated 1910, showing the value of purchasing current issues of leading periodicals rather than complete files of any publication, in building a useful medical library.

A similar study made by K. K. Sherwood² yields additional valuable information. Studying references that appeared in THE JOURNAL alone, he found that subscriptions to four magazines will supply the reader with one fourth of all noteworthy advances in medicine in the original articles. The leading fifty magazines contain 70 per cent of all noteworthy original articles. At present, he says, German is the most valuable foreign language for the use of an American physician. Finally, his studies showed the position of THE JOURNAL in the field of medical reference by revealing 411 references to THE JOURNAL, as contrasted with 82 references to the periodical next in line.

Because of the special problems created by the increasing cost of German medical publications, the Medical Library Association also has made a survey in this field. It was concerned especially with the cost of medical periodicals. Of particular value was the analysis of the per page costs of various publications. This analysis³ reveals the fact that the per page cost of THE JOURNAL to a subscriber is approximately one-sixth (0.16) cent, as compared with one-half (0.51) cent for the *British Medical Journal*, three-fifths (0.64) cent for the *Lancet*, one-third (0.34) cent for the *Presse medicale*, one-half (0.44) cent for the *Deutsche medizinische Wochenschrift*, and one-half (0.46) cent for the *Klinische Wochenschrift*, which are of the same type. In the field of specialistic publications the following comparative page costs are of interest. The *American Journal of Diseases of Children*, one-fourth (0.28) cent, the *Archives of Internal Medicine*, 0.24, the *Archives of Neurology and Psychiatry*, 0.30, the *Archives of Dermatology and Syphilology*, 0.35, the *Archives of Surgery*, 0.45, and the *Archives of Ophthal-*

¹ Jenkins, R. L. Periodicals for Medical Libraries, J. A. M. A. 97: 608 (Aug. 29) 1931.

² Sherwood, K. K. Relative Value of Medical Magazines, Northwest Med. 31: 273 (June) 1932.

³ Robert A. L. and Schaltenbrand, H. H. The Comparative Cost of Medical Journals, Bull. M. Lib. A. 20: 140 (April) 1932.

mology, 0 44, as contrasted with the *British Journal of Diseases of Children*, 1 88, *British Journal of Surgery*, 1 22, and *British Journal of Dermatology*, 1 71. Moreover, the German comparative figures are startling: *Deutsche Zeitschrift für Chirurgie*, 1 74, *Archiv für klinische Chirurgie*, 2 37, *Virchows Archiv*, 3 30, and *Zeitschrift für Kinderheilkunde*, 2 40. It is not surprising, therefore, that Dr. Fielding H. Garrison,⁴ after an analysis of these figures, should write that THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION is, in respect of quantity and variety of material and illustrations, most reasonable of all in price, and, again, "Considering the profusion of photographic illustrations in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, it is obvious that other expensively illustrated periodicals cannot compete with the A. M. A. journal in extent of sales and subscriptions."

The problem of subscription to German medical periodicals has become an exceedingly difficult one for American medical libraries to solve. There seems to be no reasonable limitation on the number of volumes issued during a year or even on the price per volume. In recent years, libraries have had to pay \$92.25 for an annual subscription to the *Archiv für Dermatologie*, \$173.30 for the *Zeitschrift für die gesamte experimentelle Medizin*, and \$123.66 for the *Zeitschrift für Zellforschung*. Libraries that wish to keep up with German medical publications are being compelled to pay 70 per cent of their available money for German periodicals. They would not seem to be worth it. As a result of this analysis a special committee has addressed a letter⁵ to German scientific societies and editors asking them to make some attempt to decrease the size and number of volumes through briefer articles and careful editorial selection, and to arrange for fixed annual subscription prices, determining in advance the number of volumes appearing throughout the year.

The American Medical Association is to be congratulated on making available to the medical profession what is shown by analysis to be the leading medical journal of the world at the lowest price comparatively of any medical publication in the world. Membership and Fellowship in the American Medical Association give to the holder more for his money than is offered by any other scientific organization in the world and at a far lower price, even eliminating the vast services that are offered. Thus, members of the American Physicists Association pay \$10 and \$15 annually, the American Chemical Society, \$15, the American Bar Association, \$8 annually. Moreover, members of the British Medical Association pay \$15 annually. Consider in this connection such services directly to the individual practitioner as the package library service, the bibliographic

reference service, the answers to queries on every conceivable medical subject, and such general services as the *Quarterly Cumulative Index Medicus*, the work of the Bureau of Investigation, the Councils, Bureaus and Committees on Pharmacy and Chemistry, Physical Therapy, Foods, Medical Education and Hospitals, Health and Public Instruction, Legal Medicine and Legislation, most of them not duplicated by any other medical organization in the world, and one begins to attain some realization of what medical organization in this country represents and what it has accomplished.

Let us now be quite frank. This editorial has been written because of a certain minimal amount of agitation to lower the price of THE JOURNAL. To do so will mean certain reduction in both the amount and the quality of service that the Association is able to render to its members. Already there has been shrinkage of the working force to the bare essentials and a reduction of salaries for employees, none of whom have ever been paid salaries proportionate to those of similar positions for other organizations and certainly not for workers in commercial fields. The Association must maintain an adequate reserve to sustain its independence and to guard against disintegration and destruction. Since, as has been shown, members now pay far less than is paid for membership in any similar body in any country in the world, and since, as has been shown, they receive for their payment far more than is received by members of any similar body anywhere else in this country or abroad, reduction in the price of Fellowship or subscription should not be undertaken at the risk of hampering the work of the organization.

THE BOARD OF TRUSTEES

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HOSPITAL INSURANCE PLANS

Already in various communities some hospitals have embarked on hospital insurance plans with a view to solving their own financial problems, and perhaps with a view to taking advantage of the interest created by recent discussion of the costs of medical care. The Committee on the Costs of Medical Care in its majority report recommended voluntary insurance or group payment as a means of solving problems in the medical field, whereas the minority was inclined to condemn such plans as leading directly to compulsory insurance and state medicine. In THE JOURNAL, last week, some of the factors of danger involved in such plans were indicated. The diversity of plans offered, the disruption already apparent among hospitals and physicians in some parts of the country, and the propaganda used to promote "pet" schemes by interested endowments, are indications of the seriousness of the situation and of

⁴ Garrison F. H. The High Cost of Current Medical Periodicals. Bull. M. Lib. A. 20, 165 (April) 1932. Reprint issued by the Medical Library Association, J. C. Harding, 11000 Euclid Avenue, Cleveland.

⁵ Letter sent to German scientific societies and editors asking their cooperation in bringing about a reduction in the cost of current German periodicals. Bull. M. Lib. A. 21, 90 (Jan.) 1933.

the need for more careful consideration than seems to be given to these problems by most hospital organizations and medical societies

It is refreshing in the midst of such doubts and disturbances as now assail the profession to find so cogent and pertinent a criticism of insurance as has just been offered by Dr Samuel C Harvey¹ in his presidential address to the New Haven County Medical Society. He says

There are certain essentials in providing any insurance. One is to limit the scope of the insurance to a field sufficiently narrow so that accurate figures may be obtained from which the actuaries may estimate the probable losses with a considerable degree of certainty. A second is the setting up of sufficient reserves to cover with complete safety any possible eventualities, and this requires capital. A third is that the insurer does not enter into the business of replacing losses in kind but only supplies the funds with which to replace such losses. An insurance company does not rebuild a house destroyed by fire, for this would mean entering into an entirely foreign field of activity which can be more efficiently and satisfactorily done by those already engaged within it. A fourth is that some mechanism be provided by which the insurance is sold with knowledge and skill so that it may be adapted to the needs of the individual concerned. A fifth is a sufficient spread of the field of the insured so that disaster to any one group will not destroy the reserves of the insurer. Taking all these things into consideration, it seems absurd to suppose that amateurs can offhand enter into the field of insurance and accomplish something that the professional organizations have not yet found themselves able to do. A customary statement is to the effect that removing the profit from insurance would enable this to be done with less cost, but unfortunately this also removes the expert in insurance matters, with the result that the gain by abolition of profit is more than balanced by the loss in efficiency. I believe, then, that if insurance is to be developed to cover the costs of medical care it must be done by those who are experienced in this activity, and that in practice means by reputable insurance organizations already in existence. Any other attempt will lead to subsidy by taxation, and where the state spends its funds it controls. There then grow up bureaus which contain within themselves the incentive to further growth, the only restraint being the exhaustion of the taxpayer. And the consumer always pays, but then by taxation through an intermediate body which necessarily abstracts from his dollar so that by the time it reaches the producer its purchasing value is sadly reduced.

With these reservations in mind, it would seem advisable to attempt to pick out some part of the costs of medical care which might be susceptible of insurance. Inasmuch as the largest factor in the serious illness is the cost of hospitalization, this would seem the logical point of attack. This has, of course, been long recognized and various attempts are being made by hospitals and groups of individuals, some of which are organized as corporations to provide insurance. None of these complies with the indications which have been stated above and therefore I believe they are essentially unsound and doomed to failure without they obtain subsidy from philanthropy or the state. That professional insurance organizations should study this problem in conjunction with hospitals and representatives of the medical profession seems obvious. The answer would seem to be in general along the lines of coverage, not complete but approximating actual hospital costs, for the use of plant and in addition limited coverage for professional fees, the disbursement to be made to the patient, the hospital and physician having, however, a primary lien upon such monies. With these limitations it should be possible to write an insurance the cost of which would fall under normal circumstances within the scope of the present average budget of the majority of families.

As was pointed out in our editorial last week, the presence of serious if not incurable ailments invariably gives rise to quack doctors, herb doctors, and recommendations by amateurs. The desires of financially innocent hospital executives, in this emergency, to participate in systems of insurance in which they and the institutions they represent bid fair to become the tools, if not the marks, of astute salesmen and commercial promoters would be ludicrous if they were not so sad. Every physician and hospital director should ponder well the five essentials emphasized by Dr Harvey in the statement here printed. They will do well to consider the results in communities which have already experienced the failures that he prophesies. Let us not too lightly sacrifice what modern medicine and the modern hospital have achieved in our attempt to gain the utopia which the Committee on the Costs of Medical Care so airily prophesies.

QUANTITATIVE CONVERSION OF CAROTENE TO VITAMIN A

In 1919 Steenbock¹ called attention to the similarity in the distribution of vitamin A and the yellow plant pigment carotene. Up to that time vitamin A had been recognized as a dietary essential for less than ten years, but many food substances had already been assayed for this factor and its natural distribution was fairly well defined. Yellow corn, yellow turnips, carrots and sweet potatoes were recognized as sources of the vitamin, whereas white corn, white turnips and white potatoes were not rich in this food factor. During the following ten years little attention was paid to this remarkable correlation between vitamin A potency and the pigment carotene, but within the past four years the intimate relationship between these substances has been demonstrated repeatedly by both chemical and biologic experimental methods. It is at present well established that the plant pigment carotene is transformed to vitamin A in the animal body. They are not identical substances: carotene is yellow, whereas vitamin A has little color, vitamin A exhibits an absorption of light of wavelength 328 millimicrons, carotene does not, both give a blue color with antimony trichloride but that with vitamin A shows an absorption band of 619 millimicrons, whereas that with carotene absorbs light of wavelength 590 millimicrons. Carotene is a crystallizable hydrocarbon with a cyclic structure, related to the terpenes, and the recent evidence indicates that vitamin A is probably a primary alcohol derivative of one half of the carotene molecule. On purely theoretical chemical grounds, therefore, it is reasonable that vitamin A should be derived from carotene. Indeed, the repeated demonstration of the vitamin A potency of carotene has led to the adoption of 0.001 milligram (1 gamma) of crystalline carotene as the international unit standard of vitamin A.

¹ Harvey, S. C. *Oikonomia Medika*, Yale J Biol & Med 5 323 (March) 1933.

¹ Steenbock, Harry. *Science* 50 352, 1919.

Although there is a considerable mass of evidence relating to the qualitative relationship of carotene to vitamin A, only recently have studies been reported bearing on the quantitative transformation in the animal body. Morgan and Madsen² determined by chemical methods the carotene content of fresh apricots and also the influence of freezing, drying and sulphuring on the amount of pigment remaining in the treated fruit. The loss of carotene in the dried fruit was about 40 per cent. The vitamin A potency of the apricots was then determined, as well as that of highly purified crystalline carotene, by the usual method of biologic assay depending on growth. When the gain in body weight of the experimental animals was related to the content of carotene in the fruit, it was found that the biologic value of fresh and of sulphured sun-dried apricots may be considered to be approximately 100 per cent of the expected value based on carotene determinations in these fruit samples.

The California studies, which are among the first to attempt to obtain a quantitative estimation of the transformation of carotene to vitamin A in the organism, indicate that within the possibilities of the present chemical and biologic methods of analysis the conversion of this plant pigment to vitamin A is nearly complete. Morgan and Madsen call attention, however, to the inevitable variations that might be expected in this relationship due to differences of absorption of the carotene, which depends, in turn, on the nature of the plant tissue of which it forms a part. It is on such quantitative measurements as these that the final chapters of the fascinating story of the biochemistry of vitamin A will be based.

Current Comment

PYRIDINE DERIVATIVES IN THE URINE

In view of the multiplicity of chemical compounds that make up the ordinary diet of man, it is striking that the accepted picture of those chemical transformations which constitute metabolism can be reduced to a relatively small number. This is especially pertinent to the changes occurring among the compounds of nitrogen in the body. A comparison of the known nitrogenous substances consumed with the number of compounds that account for the bulk of the nitrogen in the urine emphasizes the relatively few chemical pathways along which the great part of these changes are brought about. On the one hand is the diet with its large number of known compounds of nitrogen and certainly some unknown ones, on the other is the urine, almost all of the nitrogen of which can be accounted for by urea, uric acid, creatine-creatinine, hippuric acid, and ammonia. However, approximately 5 per cent of the urinary nitrogen is customarily reported as "undetermined," consisting of unusual compounds present in such small concentrations that the task of separation and quantitative determination is made extremely

difficult. A recent contribution to our knowledge of the make-up of this "undetermined" nitrogen of the urine has been made by Linneweh and Reinwein.¹ These investigators applied the Kutscher method of separation of bases with silver to 40 liters of urine and, after further manipulation, obtained 0.6 Gm of pure trigonelline chloride and 0.31 Gm of methyl pyridinium hydroxide. These substances are of interest because both are simple derivatives of the cyclic nitrogenous compound pyridine. The pyridine nucleus occurs in many alkaloids and trigonelline itself is widespread among the plants, notably in coffee. Furthermore, it has been shown that in the animal body trigonelline is derived from nicotinic acid, a derivative of nicotine. Less is known of the probable origin of methyl pyridinium hydroxide, though it has been said to arise from coffee during metabolism. Certain it is that the discovery of these unusual compounds in the urine will serve to call attention to the related compounds, in the food and their ubiquitous distribution. However, the question of greatest biochemical interest, namely, the manner in which the body handles these unusual and probably toxic substances, awaits the determination of the chemical nature of the combination of the pyridine derivatives as they occur in the urine.

Association News

ANNUAL CONGRESS ON MEDICAL EDUCATION AND LICENSURE

Twenty-Ninth Annual Meeting held in Chicago Feb 13 and 14 1933

DR. RAY LYMAN WILBUR, Washington, D. C.,
in the Chair

COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

FEBRUARY 13—MORNING

Report of the Chairman of the Council on Medical Education and Hospitals

DR. RAY LYMAN WILBUR, Washington, D. C. During 1932, 642 hospitals were visited by members of the Council's staff. A wide range was covered, but emphasis was placed on (a) those hospitals that were approved or seeking approval for intern training, and (b) those hospitals approved or seeking approval for residencies in the specialties. Following out the action of the House of Delegates, the visitation of the hospitals for the mentally ill, 632 in number, has been practically complete. A beginning has been made in the inspection of hospitals for the treatment of tuberculosis, and also of the Negro hospitals, and at the request of the House of Delegates it is planned during the coming year to spend some time in studying the needs of small hospitals. Also, at the request of the House of Delegates, an analysis is being made of the staff membership of registered hospitals for the purpose of determining what percentage of the staff are members of the American Medical Association.

During the last fifteen years, the number of hospitals offering suitable training for interns has increased so that in 1932 the number of places available in approved institutions exceeded by 25 per cent the number of graduates from recognized schools. As hospitals are constantly striving to secure this approval, it is evident that this proportion will become greater. It is suggested that a solution of this difficulty may be found in extending the average duration of the internship.

The Essentials of a Registered Hospital have been revised so as to bring them up to date and the new statement has received the approval of the House of Delegates.

² Morgan A. F. and Madsen E. O. *J. Nutrition* 6: 83 (Jan.) 1933

¹ Linneweh W. and Reinwein, H. *Ztschr. f. physiol. Chem.* 207: 48 (April 20) 1932

The report on hospital service was published in *THE JOURNAL*, June 11, 1932

Hospital Practice, a handbook of useful information for interns, has been completed and is ready for distribution

In some parts of the country, osteopaths and even chiropractors have claimed the right to practice in tax supported hospitals. Thus far the medical profession has been successful in persuading boards of management that the interest of the public is best served by excluding cultists from hospitals.

The Council has prepared and published during the year lists of physicians specializing in radiology and pathology. Formerly the Council approved laboratories in which radiologic or pathologic examinations were made. Experience, however, seemed to indicate that it was more important to analyze and appraise the qualifications of the individual who might be practicing radiology or pathology than to place the seal of approval on certain premises or organizations engaged in these fields. To this end, the *Essentials for Physicians Specializing in Radiology and Pathology*, respectively, have been revised and in their new form have received the approval of the House of Delegates.

The Council is also prepared to extend to other special fields of medicine the service which it has rendered in the fields of radiology and pathology, to the end that members of the medical profession and others who may be concerned may be able readily to distinguish those who have received training in the various branches of medicine from those who are merely self constituted "specialists."

During the past year, no additional medical schools have been approved. The University of Mississippi School of Medicine has been continued on probation.

The *Essentials of an Acceptable Medical School* have been revised in collaboration with a committee of the Association of American Medical Colleges.

A study has been made of the number of students repeating a part of the medical curriculum because of poor scholarship. Whereas seventeen schools had none repeating, a few schools had more than 10 per cent. It is of even greater concern that, in some instances, students who have failed utterly in the regular examinations have been promoted by executive order so as to avoid the necessity for reporting "repeaters." The executive order in medical education will have to be looked into.

Within the last five years there has been a larger number of technically qualified applicants than the medical schools of this country have been able to receive. Some of those who have been rejected, and many others who are not technically qualified, have migrated to European universities with the expectation of returning to this country to practice. At present there are probably 2,000 such American medical students abroad. In order to deal with this problem, the Council has brought together informally representatives of interested bodies for the purpose of discussing ways and means of protecting this country from men and women who may not be fully prepared. As a result of these conferences, it is hoped that uniform action may be taken by state boards throughout the country to exclude from their licensing examination all who have not fully met the prevailing standard of medical education in this country.

During the past year there has been published in revised form *A Standard Classified Nomenclature of Disease*, which, if it could come into general use, would greatly simplify hospital records and add enormously to their value.

I have tried to give some impression of the principal functions of the Council. It will be noted that certain real problems remain. For instance, the matter of the student educated in foreign institutions who expects to return to America, the hospital and what shall be done with it under existing conditions, whether such work as has been done for the radiologists shall be extended to the other fields of medicine.

Results of the Work of the Commission on Medical Education

SAMUEL P. CAPEN, PH.D., Buffalo. This will appear in full in *THE JOURNAL*.

DISCUSSION

DR. STANLEY RYERSON, Toronto, Ont. The report conveys the idea that medical training needs revision so that (1) recognition is given of the concept of medicine as a social

agency, (2) clinical methods will be brought into closer relationship with the fundamental sciences, (3) prevention, as a means of medical aid, will permeate the whole course, (4) the care and treatment of the patient, rather than of the disease, will be taught and, as Chancellor Capen has pointed out, medical education will constantly have to be recast and rearranged. A further point that the report suggests is the importance of the psychologic aspect of medicine. Twelve years ago, psychology was introduced as an elective course in the first medical year of the course at the University of Toronto. Students who might be interested in this mental aspect of practice followed this elementary course by other electives in practical psychology, abnormal psychology and psychiatry in the succeeding years. The number of students taking the introductory course as an elective had increased by 1931 to 70 per cent of the whole class, so last year psychology was incorporated into the first medical year as a compulsory course for all students. I think the time has come when psychology has to be recognized as one of the fundamental courses in the medical curriculum. "The course should be regarded as a unit and the instruction in individual departments ought to be presented with respect to the whole," reads the report. The fact that such a point of view does not exist at present is abundantly evident, with courses in anatomy taught as though the object were to train anatomists, in physiology to produce physiologists, in pathology to produce pathologists, in surgery to create surgeons. The statement of the curricular requirements and the methods used in instruction create the impression in the mind of the student that each subject is a unit in itself, a completion of the knowledge of which he is expected to accomplish in the time devoted to it. There is a textbook in each subject containing such a mass of information, the relative values of which he is unable to determine and the quantity of which is so great, that a picture of the subject as a coordinated whole, such as the structure of the body as a unit or the functions of it, is beyond his comprehension. If the idea of the unity of the course could be inculcated, the student will realize that, as the report says, "the educational sequence from premedical education to retirement from practice should be looked on broadly as a single problem, not a succession of isolated and unrelated experiences."

Whether that part of the Report on the Education of Medical Students adequately fulfils the first purpose of the commission of "making a study of the educational principles involved in medical education" is open to question in the minds of many. A study of whether the educational methods at present being used in medical colleges are based on sound educational principles does not appear to have been conducted or reported on as a specific investigation. That a solution to the problem of medical education is being sought in medical schools everywhere today is apparent. The one factor of this problem which is common to all medical colleges is that set down as the first purpose of the commission, namely, the educational principles involved. Should not a scientific study be made of the present principles of education that are in operation in the medical course? Are the methods used in instruction in accordance with accepted principles of education? Is the present method of teaching anatomy conducted in accordance with modern educational principles? Does the present method of laboratory work justify itself in the results obtained? Is the clinical teaching carried out in accordance with the principles laid down in the case study method of education? Is teaching done with an understanding of the learning processes of the student? Is the sequence of courses and the correlation of courses such as to make the course a unified whole? How can a shift in the interests and point of view of those in charge of medical education be brought about regarding the training of students and the new philosophy of medical responsibility? Books, journal articles and meetings have been drawing attention to the defects of medical education for ten or fifteen years and yet nothing has happened as yet to remedy effectively its weaknesses. The time has come when action by investigation of educational principles must be taken, if we hope to train adequately and effectively the medical man of the future to meet the professional, social and economic responsibilities that the report envisions.

An unprecedented opportunity exists for this association and the Association of American Medical Colleges to cooperate in instituting an investigation of educational principles and meth-

ods as they now exist in a representative number of medical colleges by one or more authorities in the field of professional education. I am aware that opposition exists to such a procedure for fear that it might jeopardize the freedom and independence of medical educators or interfere with the creation of the scientific and research point of view. Just as the fear of undergoing a physical examination by the patient is due to his ignorance of the value of the information that may be gained, so is the fear of an educational examination of the medical course based on a lack of appreciation and understanding of the present-day science of education. Education as a science has the same status in the American Association for the Advancement of Science as the medical sciences and is an established section of this body. Instead of the newer methods of education leading to a greater tendency to school-boy teaching, to greater rigidity, to more formality, to increased lockstep, to the return of the pedagogue of fiction, the whole basis of their philosophy depends on a steadily decreasing part taken by the teacher in his endeavor to educate the student to educate himself. The report endorses many of these newer principles in which a change in point of view is necessary. Why, where, when and how these new educational principles should be introduced into medical courses, can be discovered only by an educational survey by a trained educationalist.

In 1929, after a joint study committee of the Canadian Medical Association and the Canadian Nurses Association had given a good deal of thought and study to the problem of nursing education, it was agreed that nothing short of a thorough investigation by a competent experienced person should be secured and they procured Prof. George Weir, head of the department of education in the University of British Columbia, for this work. The "Survey of Nursing Education in Canada" was published in 1932. Why be afraid of such a procedure? If a similar survey is made of medical education, I am confident that the knowledge and information obtained, when considered along with this report, in which the professional aspects are dealt with so comprehensively, will enable universities and medical colleges to provide an eminently more satisfactory and effective medical education.

Some Phases of Medical Education in Europe

DR ALAN GREGG, New York. In June, 1924, I was sent by the Rockefeller Foundation to study medical research in Europe, spending about half the time in our Paris office and the other half in visiting and revisiting almost all the countries in Europe. I remained until January, 1931. The European universities had origins and initial circumstances quite different from those of universities in America. The first European universities began in many instances as spontaneous and rather informal segregations of scholars out of an established feudal society. The earliest universities in the United States began as colleges because the ministers of the Gospel and the teachers among the colonists were faced with the necessity of recruiting and training teachers and preachers for the colonists. Quite apart from historical considerations, there are other circumstances of a sociological category that affect medical education in Europe. Some of the implications of a dense population, as contrasted with a sparse settlement of the country, may be considered first. Norway, Sweden, Finland, parts of Russia, and even Scotland are countries where settlement is sparse in comparison with France, Germany, Belgium or Italy. The sparseness of settlement has a direct effect on medical school policy, since it is likely that the medical graduate will go to a community where there is within easy reach neither professional help nor professional competition. This sparseness of settlement means that the doctor must be reasonably well trained to meet a great variety of emergencies and sicknesses. It is, I think, quite natural that in these countries one finds implicit in the policy of the medical schools a definite sense of responsibility to turn out medical graduates that shall be competent and not dangerous, broadly trained and not narrowly specialized. Now, in countries of dense settlement one notes, on the other hand, the tacit and justifiable assumption that after graduation competition will do much that the medical faculty need not do, and perhaps cannot do, in giving long apprenticeship and intensive experience to the young doctor. It is hardly possible in Belgium for a young graduate to be the only physician in a wide area. He enters competition with others and he must wait

for the maximum responsibilities. It is common to see only 80 candidates successful in a competition of 800 for the most desirable posts. I think that in the United States we are suffering inevitably from the fact that we have both types of settlement, and that no single school can count on producing students exclusively for one or the other set of conditions. Closer examination of the sparsely settled countries of Europe leads to another consideration. Though sparsely settled, they contain the maximum population that can be sustained. The competitive life in Europe impressed me as more like a race in a narrow street. If one is at the very front, one can go very fast to find one's reward, but almost anywhere else the problem is not only to go fast but to keep from being run over by a competitor all too ready to take one's place. It may not be that we shall ever have in the United States the same ever-present competition that is characteristic of European universities, but, on the other hand, some day we may approach Europe in population density and the effect it brings.

In academic circles it is a competition not only for a livelihood but for place. European society gives to the professor-doctor especial recognition. Family pride is involved in this struggle for place, and pressure from all quarters concentrates on the student, not only in the university but in the secondary school perhaps as much or even more. The competition for place is a competition of endurance as well as speed, and longer training and broader training are the qualifications offered by the successful competitors. It is common to see a very close relationship between, say, a professor of clinical medicine abroad and his assistants, but not so close a relationship between the professor and the average run of students. From this relation with assistants have developed the so-called academic families, and the academic past of any young man is an important and widely known item in the evaluation of his real worth. In justice to professors who are almost victimized by this competition, I would suggest that it may in part explain the preoccupation in the eyes of casual visitors which seems to characterize some of the best men in the clinics and laboratories of Europe. I have seen this preoccupation misinterpreted again and again and I do not think that it is fair to attribute to it the interpretation that would be placed on it in the United States.

It is not sensible to attribute too much to the necessities of competition, but there is an almost inescapable conclusion that it results in a special sort of intellectual maturity in the young European which is not so commonly found in so-called younger countries. Naturally, attention in Europe is sharply concentrated, therefore, on the method of the selection of men for important positions. There is a degree of discrimination in the estimates of intellectual ability and character, there is an amount of rivalry, not always of an edifying sort, there is a tendency to widen the field of choice, there is a solicitude for creating methods of proving quality before the final choice, and there is even an amount of dickerings with the actual nominee for a professorship which is interesting and impressive. One sees young Germans obliged to leave the university of their choice, since they can get the coveted position only if they are called back to it. My attempt, therefore, is to pass on in this brief talk one or two facts which, I came laboriously to realize, are some of the considerations to bear in mind in interpreting the facts of medical education abroad.

DISCUSSION

DR E. P. LYON, Minneapolis. As I read over Dr. Gregg's paper, the following struck me as notable points. The first is the desirability that we study medical education in other countries, in Europe, and that we draw from there ideas for use in our own situation. The statement to the effect that some were beginning to think of medical education as self education ought to be the predominant thought in all our minds in the coming years. I think we have come to the time when standardization of curriculums and the dealing out of so much material which is to be taught is past. I think that means that we shall pay less attention to curriculum, to pedagogic details, to classwork, to the details of tenets, and so on, and that we shall bend every effort to tell the student that he has to get the stuff for himself and that what he will be will depend on how much he is able to make himself self educated, and it is not our business at all to educate him. In regard to the author's discussion of the difference in training to fit

people for places of less versus more dense population, I have not any definite opinion. Probably it is true that our students being educated in modern, highly equipped hospitals get less of the methods which would be used in out-of-the-way places to accomplish the same result, perhaps lose inventiveness, and perhaps are less able to tackle the situation in the country than students formerly trained. I feel that perhaps there should be among clinical teachers more of an effort to call attention to methods which can be used when the equipment is less extensive than that which we have in the teaching hospitals.

Regarding specialists' training, I have a feeling that we are past the period of the six weeks specialist, and that the young men nowadays who go into specialties make up their minds beforehand to a long period of training. There are certain important things that Dr Gregg left out. The first is that there is a tendency to a definite overcrowding of the medical profession, and I think the meeting of that emergency is the greatest problem now before medical educators. One cannot sit in a dean's chair and notice the struggle of young men to get located compared with twenty years ago and not be struck with the fact. I have thought, "How can it be settled under our American conditions?" and I must say my mind is very hazy, but I feel that the basic movement must come from the medical profession represented by the American Medical Association and from the medical educators as represented by this body and the Association of American Medical Colleges. I feel that the most drastic steps should be taken to meet it. And I favor such drastic steps on the sociological argument that it is bad for the people. Anything that tends to overproduction in the medical profession tends to the outcropping of all that is bad in medicine. At present the medical profession is a high-minded, honest and reliable profession, taken as a whole, but in its midst there are always some shysters, some quacks, some abortionists, some men who have not been impregnated with the ethics of the profession. When the exhibitions of competition become more drastic, I am certain that every one of those tendencies in the wrong direction will be exaggerated. As a protection for the whole people and not for the medical profession alone, I strongly advocate that we get right at this job to find out where we are standing.

DR DEAN LEWIS, Baltimore. I was glad to hear Dr Gregg say there are three things absolutely necessary in the education of the medical student. The first is observation, the second is reasoning, and the third is a knowledge of literature. In our present-day system of education they have very little of either. I have seen a great deal of interest in the statement that all education should be self education. In surgery, self education in fracture results in such things as crippling a patient in a case of fracture of the femur. That is self education, but it is hard on the patient. So far as the teaching of surgery is concerned, there are certain things a man has to know before he can take care of patients. In the first place, he has to know in the treatment of fractures the difference between a long fragment that he can control and a short one which he cannot control, and he does not learn that unless somebody tells him. There will be a lot of cripples if he goes on self education. Self education does not apply so far as surgery is concerned. There are certain things that one has to teach the student, and then he has to reason and observe. There are things that he has to be told repeatedly, and it is often repetition that gives the medical student the best part of his training. I also think there has to be a certain amount of discipline. There is a tendency among medical students to choose the things they like because they are easy.

DR AUSTIN A HAYDEN, Chicago. There is a question brought to mind by the diagram that is on exhibit outside the door, regarding the overcrowding of physicians in certain countries. I was surprised to learn that America has the greatest density of physicians per population and that the country that is second in physicians to population is Spain. Dr Gregg's observations, he says, have been gathered from the interviewing of professors, of government agents, and of medical educators in general. As a private practitioner of medicine, I should like to call attention to the fact that there is such a thing as a patient, and that there is such a thing as a private practitioner of medicine, on which these professors and government agents depend for the actual delivery of medical service to sick people.

DR ALAN GREGG, New York. I think that the point that Dr Hayden brings out is partially answered by the fact that so far as I know none of the professors with whom I spoke were full time professors. They were all doing some practice. A good many of them, if not the majority, had been doing practice quite apart from the universities previous to their university appointments. I did not use the word "self education" because it happens that I think that very rarely happens in pure culture. But what I think does happen is that the pressure and the seriousness of life that surround the European student make him realize that he is responsible and it is for him to choose people who will do teaching for him. A young man in Europe knows his professional circumstances are more serious than we have in this country. His education, in order to get into the school, is settled when he is about 13 or 14 years old, by being put into a course. So the load for the parents is one that begins at 13 and finishes around 27 or 28, but it really goes on further than that because one doesn't do very well in the first ten years. The parents have got to be ready to make at least supplementary support for their children during the years immediately following the obtaining of their degree and apparent entrance into practice. That reflects itself in a serious way in the whole atmosphere of society. The students feel it, and they don't get annoyed with some one who has to get something. Family reputation is involved, financial stability is involved, freedom of action is involved, and self respect is involved. They can't play with that. I am talking about the better grade of Europe. I know in Europe that there are a number of casual students, but I am not telling you what goes on in Europe in a judicious frame of mind, because then I should say we have certain things we can learn from Europe, and there are certain things in which we are doing better than they are doing in Europe. I would agree with Dr Lewis that there are large fields in medicine where teaching must take place, but what I want to point out is that in Europe it is probably a little bit less of the item of pressure from teacher and a little bit more of the item of succession from student, and that that is responsible for its being possible to leave to a certain extent some of the decisions regarding how much he shall take of this or that to the student. The very best men are the men most eager to get under the prolonged tutelage. It isn't a question of self education. They want to get under the prolonged tutelage of good men, and they will sell their souls to do it. The competition is strict. To answer the question Dr Hayden raised about Spain, the degree of Doctor of Medicine has in Spain a certain social value. When in Brazil I knew lots of professional politicians who went through school to get a degree of Doctor of Medicine. I feel that in Spain it is more than likely that the same factor is in play. There is also almost a perfect difference so far as what happens to the tail end of the profession. There are plenty of doctors in Spain not practicing because there are not enough persons to practice on, they are registered as doctors but are probably doing something else. They keep up their registration. I don't think that explains all of it, but it is enough to be a partial explanation.

Comments on the Internship

DR WILLARD C RAPPLEYE, New York. This article appeared in full in THE JOURNAL, March 25, page 873.

DISCUSSION

DR VERNON C DAVID, Chicago. Rising from the rank of medical student to that of a responsible house officer and therefore coming into much greater personal relationship with his attending man, one has a great opportunity to set an example in the moral issues involved in the practice of medicine. The influence of the late Frank Billings on his house officers is a case in point. Scientific honesty, kindness, equal interest in rich or poor, absence of sham or front, an appreciation of the changed psychology of the sick and a whole string of equally homely virtues developed a morale far removed from thoughts of fee splitting, commercial practice, too lofty dignity or careless work. There are not many Billingses, but every attending man can develop moral perspective in his house staff. It would seem important that men should have a rotating intern service. The surgical internship is not a proper place for training in operative technic but rather is an opportunity for further study of surgical principles. The intern should

make independent rounds and dressings as well as those made with his attending man, should do the laboratory work in his cases, should study the microscopic changes in specimens from his service, and should have and take time to read about his cases. Those things are on the shoulders of his attending man.

(To be continued)

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts on Tuesday and Thursday from 9 15 to 9 20 a m (central standard time) over Station WBBM (770 kilocycles, or 389 4 meters). The subjects for the week are as follows:

April 4 A New Deal in Food Advertising
April 6 Chocolate.

There is also a fifteen minute talk sponsored by the Association on Saturday morning from 9 45 to 10 o'clock over Station WBBM.

The subject for the week is as follows:

April 8 Heart Pains and Palpitations

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

State Medical Meeting at Montgomery, April 18-21—The sixty-sixth annual meeting of the Medical Association of the State of Alabama will be held in Montgomery, April 18-21, under the presidency of Dr Samuel Kirkpatrick, Selma, and with the Montgomery County Medical Society as host. The governor of Alabama, Hon B M Miller, the mayor of Montgomery, Hon W A Gunter, and the president of the county medical society, Dr Charles E Robert Parker, Montgomery, will give addresses of welcome. Dr Kirkpatrick's speech will be on "Contributions of Medicine to Civilization." The scientific program will include the following physicians as speakers:

Harold E Simon Birmingham Clinical Syndromes of the Surgical Spleen.
Harry R Cogburn Mobile The Scope of Dermatology.
Emmett B Frazer Mobile Hematuria Its Great Significance.
John F Yarbrough Montgomery Acidemia Its Relation to Chronic Disease.
James R Garber, Birmingham, Prophylaxis in Labor.
John E Walker Opelika Hypothyroidism with Particular Reference to Its Cardiac Complications.
Charles E Robert Parker Montgomery Celiac Disease—Chronic Intestinal Indigestion.
Harry A M Simpson Florence, Incidence of Mental and Nervous Manifestations in Internal Medicine. Review of 100 Cases.
James Harold Watkins, Montgomery The Mechanism and Significance of Heart Pain.
James H Dodson Mobile Consideration of Some of the Anatomic Structures Dealt with in Treating Anorectal Diseases.
Alfred S Fraser, Dothan Acute Osteomyelitis.
George S Graham Birmingham Identification of Cancer Cells in Serous Fluids as a Diagnostic Measure.
Samuel L Ledbetter Jr Birmingham Congenital Pyloric Stenosis.
John D Sherrill Birmingham Ununited Fracture of the Neck with the Femur.
Walter F Scott Birmingham Prostatic Resection—Its Limitations and Complications.
James M Mason Birmingham Traumatic Arteriovenous Aneurysms.

A public meeting, Wednesday, will be addressed by Drs Dean Lewis, Baltimore, President-Elect, American Medical Association on "Medical Problems Confronting the Medical Profession," and Irvin Abell, Louisville, on "Recent Contributions of Science to the Field of Medicine." Dr John Shelton Horsley, Richmond, Va., will deliver the Jerome Cochran Lecture on "Cancer of the Stomach and Colon." Other guest speakers will include:

Dr Roy Wesley Scott professor of clinical medicine Western Reserve University School of Medicine Cleveland Clinical and Pathological Observations in 2 000 Cases of Cardiovascular Disease.
Dr Wiley R Buffington professor of ophthalmology Tulane University of Louisiana School of Medicine New Orleans Diagnostic Importance of the Eye.
Dr Hugh J Morgan professor of clinical medicine Vanderbilt University School of Medicine Nashville Thomsen's Disease A Clinical Study.
Dr Robert G Carothers Cincinnati Treatment of Fractures of the Ankle.

Dr Frank K Boland, professor of clinical surgery Emory University School of Medicine Atlanta Differential Diagnosis of Abdominal Tumors.
Dr Fred W Rankin, Lexington, Ky Curability of Cancer of the Right Colon.
Dr John J Shea, Memphis, Tenn, Management of Fractures of the Facial Bones.
Dr Raphael E Semmes, associate professor of surgery, University of Tennessee College of Medicine, Memphis Head and Brain Injuries.

A symposium on Bright's disease will be given by Drs James S McLester, Birmingham, Monroe A Maas, Selma, and Frederick W Wilkerson, Montgomery.

ARIZONA

Bill Enacted—H 46 has become a law, requiring all applicants for licenses to practice the healing art, as a condition precedent to examination by their respective "professional" boards, to pass examinations in anatomy, physiology, pathology, chemistry, bacteriology and hygiene, to be given by a board of examiners in the basic sciences.

ARKANSAS

Bill Enacted—S 361 has become a law, according physicians, dentists, nurses and hospitals treating persons injured through the fault of other persons liens on all rights of action, claims, judgments, settlements or compromises accruing to the injured persons by reason of their injuries.

CALIFORNIA

Health at Long Beach—Telegraphic reports to the U S Department of Commerce from eighty-five cities with a total population of 37 million, for the week ended March 18, indicate that the highest mortality rate (24 6) appears for Long Beach, and the rate for the group of cities as a whole, 12 1. The recent earthquake in California, which caused its greatest devastation in Long Beach, is responsible for the resultant increase in the mortality rate. The mortality rate for Long Beach for the corresponding period last year was 11, and for the group of cities, 13 9. The annual rate for eighty-five cities was 12 4 for the eleven weeks of 1933, as against a rate of 12 5 for the corresponding period of last year.

Southern California Medical Association—The tentative program of the annual meeting of the Southern California Medical Association in Pasadena, April 7-8, is as follows:

Dr Emil Bogen Olive View Cause of Death in Consumptives.
Dr Norman J Kilbourne Los Angeles, Internal Hemorrhoids Comparable Results of Treatment by Operative and Injection Methods.
A Survey of 60 000 Cases.
Dr Markley C Cameron Jr Los Angeles Functional Dyspepsia.
Dr Earl M Tarr Los Angeles Relation of Vitamin B Deficiency to Metabolic Disturbances During Pregnancy and Lactation.
Dr George D Brown, Pomona Treatment of Acute Intestinal Obstruction.
Dr Samuel M Alter, Los Angeles The Acid Base Equilibrium.
Dr George S Sharp Pasadena Curability of Cancer by the Combined Methods of Irradiation and Surgery.
Dr Neville T Ussher Santa Barbara, Treatment of Bronchial Asthma with Physiotherapy.
Dr Carl R Howson Los Angeles Cavities in Pulmonary Tuberculosis Their Significance, Prognosis and Treatment.
Dr Howard L Updegraff, Los Angeles Reconstruction of the Burned Face.

A symposium on thermotherapy will be given by Drs Douglas R Drury, Los Angeles, John F Van Paang, Santa Barbara, and James Ross Moore, Los Angeles. The Friday evening session will be addressed by Drs Jacob C Geiger, health officer of San Francisco, on "Treatment of Carbon Monoxide Poisoning," and Arthur W Meyer, professor of anatomy, Stanford University School of Medicine, San Francisco, on "Attrition in the Human Body."

COLORADO

Venereal Disease Clinic—With the discontinuance of the clinic for the treatment of venereal diseases operated by the state board of health, because of a reduction in funds, the Denver health department opened its own clinic March 15. Five rooms have been made available on the third floor of the Police Building. It was stated, where indigent residents will be treated. Social service aid will be used to prevent the use of the clinic by persons who should obtain treatment from private physicians.

ILLINOIS

Warning About Rabid Dogs—The state department of health, Springfield, issued a warning, March 14, concerning dogs suffering from rabies. Three persons have died of the disease in the state recently, it was stated. Fifty of 100 dogs recently examined were found to be suffering from rabies.

Past Presidents Honored—The Kane County Medical Society, Dundee, presented badges of honor to all living past

presidents of the society at a meeting, February 15 Dr George J Schneider, Elgin, who served in 1903, is the oldest living past president Others are Drs Frederick C Schurmeier, Elgin, who held office in 1912, William H Bishop, Elgin, 1913, William H Schwingel, Aurora, 1915, Adam E Diller, Aurora, 1917, 1918 and 1919, Lawrence J Hughes, Elgin, 1920, George W Harin, Aurora, 1921, Ralph W Carpenter, Geneva, 1925, Carl P Struve, South Elgin, 1927, John W Drever, Aurora, 1928, and Hugh H West, Elgin, 1931 Dr Frank E Sumpson, Chicago, addressed the meeting on "Radium Treatment of Cancer"

Quack Collins Electrocuted—G Ward Collins of Springfield was reported to have been electrocuted while operating an x-ray machine in his office, March 10 According to the Department of Registration and Education of the State of Illinois, Collins has been an old violator in the chiropractic field When the clean-up was made in the department of registration and education and Mr J E Edwards, the present chief inspector, was put on the job that he has so well filled, Collins' activities were looked into, and in January, 1931, a warrant was issued The case was set for May, 1931, and was continued seven times Finally the state got the case to trial, and on Sept 29, 1932, G Ward Collins was found guilty on two counts A motion for a new trial was denied and a sentence of \$500 was imposed and he was given sixty days to file a bill of exception March 9, the state's attorney at Springfield was preparing an answer to Collins' brief, which was going to the appellate court

Chicago

Northwestern Presents Program—Northwestern University Medical School will sponsor the program of the Chicago Medical Society, April 12 Members of the faculty will speak as follows

Dr Fremont A Chandler, Fractures of the Lower End of the Radius
Dr William R Cubbins, Unilateral Fractures of the Tuberosity of the Tibia
Diagnosis, Differential Diagnosis and Treatment
Dr Paul B Magnuson, Necessity of Early Differentiation Between Operative and Nonoperative Methods of Treatment in Fractures
Dr Harry E Mock, Compression Fracture of the Spine

The society's meeting, April 19, will be devoted to a clinical demonstration of dermatologic cases by the departments of dermatology of the medical schools of Rush, Northwestern, Illinois and Loyola

"Cancer Specialist" Tilton Sentenced to Penitentiary—Lester Tilton, "cancer specialist," was sentenced to serve from one to five years in the penitentiary and fined \$2,000, February 6, in the criminal branch of the superior court for conspiracy to violate the Illinois medical practice act Tilton's activities in the medical field have been carried on for years At one time, he conducted an "institute" in Clinton, Iowa, where he is alleged to have treated cancer, tuberculosis and syphilis Later his "clinic" in Detroit was closed (THE JOURNAL, Aug 23, 1930, p 601) In Chicago, Tilton's quackery was particularly blatant Harry de Joannis, one of Tilton's business agents, received a similar sentence and fine Sentence has not yet been imposed on Dr Joseph Duffy, whose license to practice medicine has been revoked on account of his association with Tilton At the recent hearing, attorneys for Tilton and de Joannis were granted sixty days in which to prepare a bill of exceptions for an appeal Tilton's exploitation of his so-called cancer cure was described in THE JOURNAL, June 7, 1930, page 1858, and July 2, 1932, page 38 The former article has been reprinted and will be sent to any one who encloses a 3 cent stamp with the request The three defendants were found guilty of conspiracy to violate the medical practice act, June 16, 1932 It has been pointed out that all physicians associated with Tilton in his quack enterprise have had their licenses either revoked or suspended according to the degree of their connection

IOWA

Society News—Dr Joseph Brown, Des Moines, will address the Linn County Medical Society, Cedar Rapids, April 13, on "Menstrual Disorders", this will be an exchange program with the Polk County Medical Society—At the annual meeting of the Sioux Valley Eye and Ear Academy in Sioux City, January 24, Drs Eugene C Foote, Hastings, Neb, spoke on "Personal Experiences on Cataract Work in India", Abbott M Dean, Council Bluffs, "Care of Glaucoma", Augustus G Pohlman, dean, University of South Dakota School of Medicine, Vermilion, "Unreal Phenomena and Their Relations to Auditory Tests", Clarence E Robbins, Pierre, S D, "Thrombophlebitis of the Lateral Sinus," and Joseph J Hompes, Lincoln, Neb, "Notes on Oriental and Spanish Eye Clinics" with motion pictures—Dr Abraham R Hollender, Chicago,

addressed a joint meeting of the Marshall County Medical Society and the Sixth Councilor District Medical Society, March 7, at Marshalltown, on otolaryngologic problems of the general practitioner—Dr Sidney A Slater, Worthington, Minn, was elected president of the Sioux Valley Medical Society at the recent annual meeting in Sioux City, and Dr William Roscoe Jepson, Sioux City, secretary—Dr Harold Swanberg, Quincy, Ill, will address the Hardin County Medical Society at El Dora, April 5, on "Radium Therapy in General Practice"

MARYLAND

Bills Introduced—H 497 proposes to make the insanity of either spouse a cause for divorce H 413 proposes to authorize the state board of health to license and regulate the operation of hospitals Hospitals are to be licensed annually and must pay annual fees of \$50

Sir Henry Dale to Give Dohme Lectures—Sir Henry H Dale, director of the National Institute for Medical Research, London, England, will deliver the Dohme Lectures at the Johns Hopkins University School of Medicine, April 20-22

MICHIGAN

Hospital News—Dr William J Seymour, Detroit, member of the Welfare Commission, was honored recently when the commission voted to name the new seventy bed unit for mental patients at the Eloise Hospital, Eloise, after him, in appreciation of many years of gratuitous service—A series of graduate clinics began at the Herman Kiefer Hospital, February 15 They will be held weekly until April 19

Personal—Dr Edwin R. Vander Slice has been appointed director of the Lansing health department, effective May 1 For several years Dr Vander Slice was director of the Michigan Tuberculosis Association He has also served as president of the Michigan Trudeau Society and of the Mississippi Valley Sanatorium Association—Dr Wilkie L Howard, Detroit, has been appointed medical director of the American Legion Hospital, Battle Creek, succeeding the late Dr Clifford L Welbourne—Dr Fannie Elizabeth Barrett has resigned as school medical inspector of Kalamazoo, after fifteen years' service She is succeeded by Dr Kenneth L Crawford

Third Graduate Course—The Michigan State Medical Society and the department of postgraduate medicine, University of Michigan, will cooperate in a graduate course in diseases of the heart and circulatory system, April 3-7 Participating in the course will be Drs Frank N Wilson, Paul S Barker, David Murray Cowie, Fred J Hodges, Franklin D Johnston, Carl V Weller, all of Ann Arbor, and Edward D Spalding, Robert L Novy, Hugo A Freund and Norman E Clarke, all of Detroit The course, March 27-31, dealt with diseases of metabolism and that for March 20-24 with pulmonary tuberculosis Courses will also be held in ophthalmology and otolaryngology, April 24-29, at the university, in proctology, May 15-27, and gynecology, obstetrics and gynecologic pathology, June 19-July 1, at the Receiving Hospital, Detroit The fifth annual practitioners' course will be conducted, June 19-July 1 Complete details may be obtained from the department of postgraduate medicine, University of Michigan Medical School, Ann Arbor

MINNESOTA

Bills Introduced—H 1529 proposes to prohibit the use, sale, transportation or possession of peyote H 1580, to amend the workmen's compensation act, proposes, in effect, to make compensable any disease or infection arising out of any employment covered by the act H 1581, to amend the workmen's compensation act, proposes to add carbon monoxide poisoning to the list of compensable occupational diseases

"Electro-path" Sentenced—Victor J Zettel, St Paul, pleaded guilty before Judge O'Brien of the district court, March 3, to practicing healing without a basic science certificate and was given a six months sentence in the St. Paul workhouse, the sentence was suspended for one year Zettel has no license to practice healing in any form in Minnesota He was arrested following his "treatment" of a man for varicose veins and ulcers The judge ordered Zettel to close his office immediately

Society News—A cardiovascular clinic was conducted before the Hennepin County Medical Society, Minneapolis, March 29, by Drs Jay C Davis, Reuben A Johnson, Arthur C Kerkhof, Chauncey A McKinlay and Thomas Ziskin—The Minnesota Radiological Society heard the following

speakers at its meeting in Minneapolis, February 18, among others Drs Charles G Sutherland, Rochester, "Atypical Findings in Bone Lesions", Lester G Erickson, Minneapolis, "Preoperative Diagnosis of Malignancy of the Liver with Thorotrast," and Richard E. Scammon, Ph D, "Contributions of Radiology to the Study of Growth"—Dr Melvin S. Henderson, Rochester, spoke on "Fractures of the Ankle Joint" before the Mower County Medical Society in Austin, recently —A joint meeting of the Minneapolis District Dental Society and the Hennepin County Medical Society, March 6, was addressed by Clayton Swason, DDS, and Dr Carl W Waldron on "Dental Caries" and "Fractures of the Jaws and Facial Bones," respectively

MONTANA

New Officers of State Board of Health—Dr Byron L. Pampel, Livingston, was recently elected president of the Montana State Board of Health, Drs George M Jennings, Missoula, vice president, and William F Cogswell, Helena, secretary

NEBRASKA

Cancer Conference at Creighton.—Drs Joseph C Bloodgood and Charles Geschickter, Baltimore, will conduct a three-day cancer conference at Creighton Memorial, St. Joseph's Hospital, Omaha, April 19-21, under the auspices of Creighton University School of Medicine. On the first day the morning will be given over to consideration of new growths of the oral cavity and the afternoon to bone tumors, the second day to tumors of the breast, uterus and ovaries, and the third day to cancer of the skin, lymph glands, chest, and the urinary and gastro-intestinal tracts. At an evening meeting, April 19, Dr Geschickter will speak on "Bone Dystrophies," and Dr Bloodgood the following evening, on "What Every Physician Should Know About Cancer." All physicians and dentists interested in malignant conditions are invited to attend and to bring their microscopes. They may also bring any borderline or early cases for presentation and discussion. No fee will be charged. To register for the meeting or for further information address Dr James F Kelly, Creighton Memorial, St. Joseph's Hospital, Omaha

NEW JERSEY

Bills Introduced.—A 374 proposes to prohibit the sale or distribution of barbitol or of any other hypnotic or somnifacient drug except on the prescription of a licensed physician, dentist, or veterinarian. A 401 proposes to accord physicians treating persons injured through the fault of other persons liens on all rights of action, claims, judgments, compromises or settlements accruing to the injured persons because of their injuries

Society News.—Drs Aaron E. Parsonnet, Newark, and Le Roy W. Black, Rutherford, addressed the Bergen County Medical Society, Hackensack, March 14, on "Failing Heart of Middle Life" and "Coronary Disease," respectively —Dr Arthur L. Stone, health officer of Camden, was elected president of the New Jersey Health Officers' Association in February —Dr Leon T. Ashcraft, Philadelphia, was the speaker before the Gloucester County Medical Society, Woodbury, February 16, on "Urology as It Interests the General Practitioner"

NEW YORK

Physicians' Hobbies.—Rochester physicians held an exhibit of their leisure-time handiwork, including paintings, wood carvings, ship models, violins, photographs and various kinds of collections, at the Rochester Academy of Medicine, March 23. Drs Joseph B. Loder and Homer A. Harvey, Batavia, exhibited violins they had made, Dr George W. Corner has constructed a home-made telescope and Drs Cyril Sumner, Clarence P. Thomas and Joseph R. Mayer displayed ship models, the Rochester *Times-Union* reports. Artists included Drs John R. Williams, John F. Gipner, Henry B. Crawford, Istvan Gasper, George B. Carroll and Robert B. Kennedy. Among the collectors are Drs Williams, who showed pictures of Washington and Lincoln, Sumner, tropical and oriental fish, Alvah C. Remington, pistols, Mayer, old armor, Nathaniel W. Faxon old coins, Eldred W. Kennedy, stamps, William Douglas Ward, ancient clocks, George W. Goler old furniture, Grace A. B. Carter, medicinal plants, George W. O'Grady, autochrome plates. Workers in wood and metal include Drs Edward Parnall, Stearns S. Bullen and Morris F. Missal. Numerous photographers were represented in the exhibit including Drs Albert C. Snell, Graydon Long, James A. Quigley, Raymond W. Hawkins and Charles B. F. Gibbs

New York City

Sixth Harvey Lecture.—Michael Heidelberger, Ph D, associate professor of biological chemistry, Columbia University College of Physicians and Surgeons, delivered the sixth Harvey Lecture of the year at the New York Academy of Medicine, March 16

New Hospital at Medical Center.—The Institute of Ophthalmology of the Columbia University Medical Center, begun in 1931, was opened for patients in January. The new hospital, said to be the only one in New York devoted exclusively to treatment of diseases of the eye, is at Fort Washington Avenue and One Hundred and Sixty-Fifth Street. The building is nine stories high, with a capacity of eighty-six beds. The institute will have a staff of fifteen physicians, six interns and thirty nurses, under the direction of Dr John M. Wheeler, professor of ophthalmology, Columbia University College of Physicians and Surgeons, and head of the ophthalmologic service at Presbyterian Hospital. Margaret H. McCurdie, R.N., is superintendent of the hospital.

Admission to Dispensaries.—A committee representing hospital superintendents and the special committee on hospitals and dispensaries of the Medical Society of the County of New York recently established a schedule of eligibility for admission to dispensaries. It was agreed that a single person without dependents who earns \$900 or less per year should be admitted. For a family of two the annual income limit was fixed at \$1,400, and \$250 was added for each dependent in larger families. The total family income is to be considered in families in which parents and children are working. It was decided also that an acute illness for which the medical expenditure would not exceed \$25 should be considered a case for private care when the earnings exceeded the schedule adopted. The examining physician in the clinic would decide whether the illness is acute or chronic and whether it could be treated for \$25. The patient would then be referred to a social worker for decision on the ability to pay.

OHIO

State Medical Meeting Postponed.—The eighty-seventh annual session of the Ohio State Medical Association, which was to have been held in Akron in May, has been postponed till October.

Bill Enacted.—S. 9 has become a law, amending the state prohibition law so as to permit physicians to prescribe alcoholic liquors under the same general restrictions that are imposed by the Volstead Act and regulations promulgated thereunder.

Society News.—Dr Charles A. Doan, Columbus, addressed the Summit County Medical Society, Akron, March 7, on "Newer Immunological Concepts in the Control of Communicable Diseases." —Dr George T. Pack, New York, addressed the Columbus Academy of Medicine, February 20, on carcinoma of the stomach, and also students of Ohio State University College of Medicine, on "Physics and Biophysics of Radium." Dr Willard C. Stoner, Cleveland, spoke, February 27, on "Chronic Arthritis and the Rheumatic State."

OREGON

Bills Enacted.—S. 127 has become a law, prohibiting the dispensing of drugs to the public by means of automatic vending machines. H. 127 has become a law, requiring all applicants for licenses to practice medicine, osteopathy, chiropractic, naturopathy or any other system of the healing art, as a condition precedent to examination by their respective "professional" boards, to be examined in anatomy, physiology, pathology, chemistry and hygiene by a state board of higher education.

PENNSYLVANIA

Personal.—Dr Frederick H. Allen, Philadelphia, has been elected chairman of the eastern section of the Pennsylvania Mental Hygiene Committee for 1933. —Dr John Bruce McCreary, Harrisburg, was elected president of the American Association of School Physicians at the fifth annual session in Washington, D. C.

Bills Introduced.—S. 629 proposes to prohibit hospitals receiving financial aid from the state or from any political subdivision thereof from employing any alien who does not furnish proof from the federal government that he entered the United States lawfully. H. 1485, to amend the workmen's compensation act, proposes in effect, to make compensable any occupational disease contracted in the course of any employment covered by the act.

Society News—Dr. Hugh H. Young, Baltimore, will address the Pittsburgh Urological Association, April 10, on prostatic obstruction—A symposium on disease of the suprarenal glands was presented before the Lackawanna County Medical Society, Scranton, March 7, by Drs. Maximilian A. Goldzieher, Maurice Packard and Harry F. Wechsler, all of New York—Dr. Thomas G. Smonton, Pittsburgh, addressed the Cambria County Medical Society, Johnstown, March 9, on visceroptosis

Philadelphia

Newbold Lecture—Dr. Burton J. Lee, New York City, delivered the twenty-ninth Mary Scott Newbold Lecture of the Philadelphia College of Physicians, March 23, on "Cancer—A Community Health Problem"

Diphtheria Campaign—The Philadelphia County Medical Society has announced its annual diphtheria immunization campaign during April and May. For the convenience of physicians, toxin-antitoxin is to be supplied from distributing points in various parts of the city. The department of health will refer to private physicians all patients who come to the health centers and are able to pay. Special instruction in the technic will be given at the headquarters of the society, April 6-7 and April 13-14.

Scarlet Fever Epidemic in 1932—Philadelphia had the most extensive epidemic of scarlet fever ever recorded in its history during 1932, with 6,549 cases and 48 deaths. The only year since 1900 which approaches the record of last year was 1921, when 6,432 cases occurred, with 104 deaths. Statistics show that scarlet fever has been definitely on the increase since 1919, as there have not been fewer than 2,000 cases since that year. The nearest approach was in 1923, when there were 2,233 cases, with 34 deaths. Whooping cough was second in prevalence with 5,351 cases in which 57 patients died. Chickenpox was third, with 3,846 cases. The incidence of measles was reported to be unusually low—408 cases, with 1 death. The city had only 17 deaths from diphtheria, the lowest number recorded in its history. The health department received reports of 23,777 deaths, a rate of 12.01 per thousand of population.

RHODE ISLAND

Bills Introduced—H. 837 proposes in effect, that all applicants for licenses to practice medicine, osteopathy or chiropractic be first examined by the public health commission in anatomy, physiology, chemistry, bacteriology, pathology, public health and symptomatology and diagnosis before being examined by their respective examining boards. H. 860 proposes that all applicants for licenses to practice medicine, osteopathy, chiropractic, dentistry or podiatry pass examinations in anatomy, physiology, pathology, symptomatology and diagnosis, chemistry, bacteriology and public health, to be given by a board of examiners in the basic sciences before being permitted to present themselves for examination to their "professional" examining boards. No member of the board of examiners in the basic sciences is to be a member of the public health commission or of the various professional examining boards.

TENNESSEE

Bill Introduced—S. 342 proposes to authorize the governor to appoint a public health council, which shall formulate the policies of the department of public health and shall nominate the commissioner of public health for appointment by the governor.

Society News—Dr. Francis R. Fraser, London, England, addressed the Nashville Academy of Medicine, February 14, on "Generalized Osteitis Fibrosa and Hyperparathyroidism." Dr. Worcester A. Bryan addressed the academy, March 14, on cholecystectomy—Drs. Robert B. Wood, Knoxville, and Spencer B. McClary, Etowah, addressed the McMinn County Medical Society, Athens, February 9, on "Home Management of Diabetes" and "Management of Influenza," respectively—The Fentress County Medical Society entertained the Five-County Medical Society (Putnam, White, Overton, Cumberland and Jackson counties) in Jamestown, March 1, speakers were Drs. A. H. Crouch, Forbus, on pelvic inflammation, John T. Moore, Algood, importance of medical organizations, and William C. Officer, Monterey, pneumothorax—Drs. William H. Reed, Kingsport, and Aaron Cole, Piney Flats, addressed the Sullivan-Johnson Counties Medical Society, in Kingsport, March 1, on appendicitis—Dr. Henry C. Long, Knoxville, addressed the Knox County Medical Society, February 28, on "Functional Digestive Disturbances"—Dr. Thomas L. Bowman, Harriman, addressed the Roane County Medical Society, February 21, on acute prostatitis.

TEXAS

University News—Dr. Henry Reid Robinson, associate professor of obstetrics and gynecology, has been named professor of clinical obstetrics and gynecology at the Medical Department, University of Texas, Galveston. Members of the Texas senate were guests of the school, February 11, when Dr. Edward H. Cary, Dallas, President, American Medical Association, addressed the legislators on the cost of medical care.

Bills Introduced—H. 829 proposes that physicians, in the absence of express contracts to the contrary, may not recover in court actions for their fees more than indicated below: office consultation, \$1, house call, \$2, and traveling expenses not to exceed 25 cents per mile, major operation, \$100, minor operation, \$10, visit while in hospital, 50 cents. S. 459, to amend the medical practice act, proposes that the act shall not be construed to apply to a member of any church who treats human ailments by prayer or spiritual means, as an exercise or enjoyment of religious freedom, if he does not prescribe or administer drugs or medicines, or assume the title of "Dr.," or hold himself out to be a physician. Such a person, however, is not to be exempt from the quarantine and sanitary laws of the state.

VIRGINIA

Hospital News—The seventh annual spring graduate course offered by the Gull Memorial Eye, Ear and Throat Hospital, Roanoke, has been postponed for this year because of economic conditions—The third annual graduate clinic for Negro physicians will be held at St. Philip Hospital, Richmond, June 19-July 1. Physicians from other states will be admitted this year.

McGuire Lectures—The program of the Stuart McGuire Lectures for 1933, to be given April 25-27 at the Medical College of Virginia, Richmond, will be devoted to the cardiovascular system. Dr. Ronald T. Grant, University College Hospital Medical School, London, will give three lectures on "Pathology of Endocarditis" and one on "Arteriovenous Anastomoses in Human Skin," and Dr. Tinsley R. Harrison, Nashville, Tenn., will lecture on cardiac dyspnea. Dr. Louis Hamman, Baltimore, will hold a clinicopathologic conference and Dr. Paul D. White, Boston, a cardiac clinic.

WISCONSIN

Bills Introduced—S. 282 proposes to make it unlawful for any person to experiment or operate in any manner on any living dog, for any purpose other than the healing or curing of that dog. A. 672 proposes to prohibit the possession, use and sale or other distribution of any contraceptive drug or device or the dissemination of birth control information. The bill, however, is not to apply to licensed physicians who, in their opinion, find it necessary to prescribe methods to prevent communication of disease.

GENERAL

Alcohol Salesman Is Impostor—A man using the name Robert H. Downs is reported to be taking orders from physicians and dentists for alcohol under the fraudulent representation that he is a salesman for the U. S. Industrial Alcohol Corporation, Frankford Distilleries and Italian Swiss Colony Wineries. He carries business cards and order forms on which the names of these firms are misspelled and which bear a prohibition permit number that does not exist. He takes an order from a doctor or dentist, collects cash and disappears. According to the report, Downs started his solicitation in Nebraska and has appeared in Iowa, Minnesota and South Dakota. He was last heard of in Idaho. It is believed that he is working toward Seattle.

Pharmacists Opposed to Handling Beverage Liquors—The council of the American Pharmaceutical Association, in view of suggestions that malt liquors be distributed through drug stores, adopted a resolution protesting against any legislation permitting or requiring such distribution. The resolution points out that pharmacists are now charged with the distribution of alcoholic liquors for medicinal purposes and that public welfare and public health require that it be kept entirely separate from the distribution of such liquors as beverages. It further declares that the distribution of alcoholic malt beverages in drug stores would be inappropriate "because it would be contrary to the essential purpose and important responsibilities of pharmacy in relation to the people and to public health and because, through such distribution,

an activity foreign to its purposes and ethics would be introduced"

Society News—Dr Peter Whitman Rowland, Oxford, Miss, was named president-elect of the Mid-South Post-Graduate Medical Assembly at the annual meeting in Memphis, Tenn., February 16. Dr Alexander B. Dancy, Jackson, Tenn., was installed as president and Drs Henry King Wade, Hot Springs, Ark., Augustus Street, Vicksburg, Miss., and Frank J. Runyan, Clarksville, Tenn., were elected vice presidents. Dr Arthur F. Cooper, Memphis, was reelected secretary. Officers were elected at the annual meeting of the Pacific Coast Surgical Association in Del Monte, Calif., February 23-25, as follows: Drs Ernst A. Sommer, Portland, Ore., president, Thomas M. Joyce, Portland, and Sumner Everingham, Oakland, Calif., vice presidents, and Edgar L. Gilcreest, San Francisco, secretary. The 1934 meeting will be held in Portland the last week-end in February. Dr William T. Pride, Memphis, was elected president of the Southern Interurban Gynecological and Obstetrical Society at its third annual meeting in Memphis, February 13. Among speakers on the program were Drs Henry Schmitz, Chicago, on "Economic and Technical Problems in Radiation Therapy", Joseph L. Baer, Chicago, "The Third Stage of Labor," and Jennings C. Litzenberg, Minneapolis. Dr Percy H. Wood, Memphis, is secretary.

Medical Bills in Congress—*Changes in Status* S 562 and H. R. 1718, relating to the prescribing of medicinal liquor, have been ordered favorably reported by the Senate and House Committees on the Judiciary, respectively. *Bills Introduced* S 193, introduced by Senator Capper, Kansas, proposes to amend the laws of the District of Columbia relating to degree-conferring institutions, so as to permit institutions heretofore incorporated under such laws, and operating exclusively in a foreign country, to use the words "Federal," "American" etc., in their titles. S 759, introduced by Senator Shipstead, Minnesota, proposes to authorize the Reconstruction Finance Corporation to make loans, in the aggregate amount of not to exceed \$25,000,000, to any public or private hospital organized under the laws of any state. S 783, introduced by Senator Copeland, New York, proposes to prohibit the counterfeiting of any medicine or preparation recognized in the United States Pharmacopeia or National Formulary for internal or external use, and any substance or mixture of substances intended to be used for the cure, mitigation or prevention of diseases of either man or animals. H. R. 3829, introduced by Representative Henney, Wisconsin, and H. R. 3902, introduced by Representative Mitchell, Tennessee, propose to regulate the importation of milk and cream, and milk and cream products, into the United States. H. R. 4135, introduced by Representative McSwain, South Carolina, proposes to authorize the acquisition of additional land for the use of the Walter Reed General Hospital.

Bequests and Donations—The following bequests and donations have recently been announced:

New York Post Graduate Medical School and Hospital \$5,600 as a gift from Mrs. Henry S. Rea to establish the Oliver Rea Scholarship Fund and for research in bacteriology in the department of pathology. St. Luke's and Children's Homeopathic Hospitals Philadelphia \$10,000. Grenfell Association of America for St. Anthony's Hospital American Mission to Lepers New York and Pennsylvania Institution for the Instruction of the Blind Philadelphia \$5,000 each by the will of the late Florence Ludwig. Hospital for Joint Diseases Beth Israel Hospital Mount Sinai Hospital Lebanon Hospital Association St. Vincent's Hospital Montefiore Hospital for Chronic Diseases Bronx and Jewish Maternity hospitals New York and Northwoods Sanatorium Saranac Lake N. Y. were among twenty-six institutions which received contingent bequests of \$1,000 each by the will of the late Emanuel Gattle. Temple University Hospital is to receive the bulk of an estate estimated at \$235,000 under the will of Mrs. Etta Melier New Haven Conn. Hamot Hospital Erie Pa. \$67,000 by the will of Harry L. Moore. Marion County (Ind.) Tuberculosis Association Indianapolis \$3,500 by the will of Leander S. Burdick, to build a hospital for mothers and children. Lacomia Hospital Lacomia N. H. \$5,000 by the will of Rev. Willis R. Odell Sandown. The town of Carrollton Ill. \$150,000 by the will of Mrs. Clarence Kelsey Chicago to build a hospital. Elliot Community Hospital Keene N. H. \$3,000 by the will of the late Mrs. Emily J. E. Daland. Gates Hospital for Crippled Children Elyria Ohio \$160,000 by the will of Miss Sarah Flickinger. Mansfield (Ohio) General Hospital \$10,000 for the building fund under the will of L. R. Dronberger. Chester County Hospital West Chester Pa. \$20,000 by the will of William P. Sharpless. King's Daughters Hospital, Madison Ind. \$10,000 in the will of Mrs. Elizabeth Heberhart. Winona General Hospital Winona, Minn. will receive the bulk of the estate of the late John Dietze valued at about \$200,000. Children's Mercy Hospital Kansas City Mo. about \$25,000 by the will of Mrs. Emma W. Robinson. Presbyterian Hospital Chicago \$25,000 from the estate of the late John Brackett Lord.

New England Hospital for Women and Children, Boston, \$15,000 by the late Hannah H. Kimball. Vassar Brothers Hospital, Poughkeepsie, N. Y., \$25,000 by the late Johnston L. Redmond. Philadelphia Freemasons Memorial Hospital, Elizabethtown, \$10,000 by the late Charles K. Channon.

PHILIPPINE ISLANDS

Medical Election—At the annual meeting of the Philippine Islands Medical Association in December, 1932, the following officers were elected: Drs Antonio C. Villarama, Manila, president, Sixto A. Francisco, Los Banos, Laguna, and Marcelino Asuzano, Pasig, Rizal, vice presidents, and Antonio S. Fernando, Manila, secretary-treasurer.

FOREIGN

Medals Awarded—Prof. Edward Mellanby of the University of Sheffield, England, has been awarded a medal of the Royal Society of London for his work on dietary factors, especially in rickets. Dr C. E. Correns, director of the Kaiser Wilhelm Institute for Biology, Berlin-Dahlem, will receive the Darwin medal for research on genetics, and Dr Torwald Madsen, director of the State Serum Institute, Copenhagen, will receive the Buchanan medal for work on immunity, especially in relation to diphtheria antitoxin.

Honorary Degrees—The Faculty of Medicine of Lyons, France, at a ceremonial, Nov. 3, 1932, conferred the degree of doctor honoris causa on Prof. Emil von Grodz, professor of clinical ophthalmology and formerly dean in the Royal Hungarian University of Budapest Faculty of Medicine, Baron Sandor Koranyi, professor of medicine in the same university, Prof. Edvard Ehlers, physician-in-chief to the community hospital of Copenhagen, Denmark, and Professor Jean Verhoogen of the University of Brussels, president of the permanent committee of the International Association of Surgery.

Cerebrospinal Fever in Cairo—An epidemic of cerebrospinal fever in Cairo, Egypt, during 1932, is described in the *Journal of the Egyptian Medical Association*. In the epidemic, which reached its peak, March 4, there was an aggregate of 980 cases, in which 422 patients died, making a case mortality rate of 42.3 per cent. During the preceding year 413 cases were reported with 246 deaths, giving a case mortality rate of 59.6 per cent. Cairo has not been totally free from the disease since 1909, although there had been a downward trend from 1916 until 1929. The epidemic of 1931-1932 reached its peak five weeks earlier than that of 1930-1931.

A New Medical Journal—A new review for the medical profession of the Mediterranean countries and the "Middle East," entitled *Folia Medica Orientalia* has recently been established in Jerusalem. The publication is to appear in sections, each devoted to a specialty. The *Folia Ophthalmologica Orientalia* and *Folia Oto-Laryngologica Orientalia* have already appeared and the *Folia Medicinæ Internæ Orientalia* is to be printed shortly. Departments of surgery, dermatology and pediatrics are to be added within the year. At present it is published in English, French and German and it is expected that articles in Italian and Spanish will be accepted later. Dr Aryeh Feigenbaum, Jerusalem, is responsible editor of the group and editor of the ophthalmologic journal.

Government Services

Dr Sayers Returns to Public Health Service

Dr Royd R. Sayers of the U. S. Public Health Service, who has been assigned to the U. S. Bureau of Mines for the past sixteen years, has been transferred back to the service to take charge of the division of industrial hygiene and sanitation. Dr Albert Eugene Russell will succeed Dr Sayers.

Dr Rossiter Appointed Surgeon General of Navy

Dr Perceval Sherer Rossiter has been appointed surgeon general and chief of the Bureau of Medicine and Surgery of the U. S. Navy, with the rank of rear admiral, for a term of four years. The Senate confirmed the appointment, March 16. At the time of his selection, Surgeon General Rossiter was commandant of the Naval Hospital in Washington. He is a graduate of the University of Maryland School of Medicine, Baltimore, class of 1895. Surgeon General Rossiter, who is 58 years of age, was appointed an assistant surgeon in the navy in 1903, and, in 1924, was commissioned a captain of the medical corps.

Foreign Letters

LONDON

(From Our Regular Correspondent)

March 4, 1933

Another Phase of "Social Reform"

Attention has recently been called in *THE JOURNAL* (March 4, p 673) to the extraordinarily wide meaning given by the courts to the term "accident" in the workmen's compensation act. A man died from angina pectoris while cleaning out metal dross from a pot, and in spite of argument to the contrary the judge held that he had suffered a personal injury by "accident" which accelerated his death, thus entitling his family to compensation. An appeal was made to higher courts, which upheld this judgment. Though the personal injury could not have happened but for disease of the coronary arteries, the combination of disease and employment made it "a personal injury by accident." The *Lancet* has reviewed some previous similar legal decisions. In 1910 the leading advocate of the day, Sir John Simon, now foreign secretary, tried in vain to persuade the judges that injury by disease cannot be injury by accident. He was dealing with the case of a workman who suffered from an aneurysm in such an advanced stage that it might have burst during sleep. He was only tightening a nut with a spanner, an operation requiring no special strain, but the aneurysm burst and he died. The house of lords (the highest court) decided that this was an accident arising out of his employment. Lord Macnaghten in giving judgment explained the reasons as follows. An aneurysm is an unnatural or abnormal dilatation of an artery, still it is part of the artery and so part of the man's body. The man "broke part of his body." The fact that his condition predisposed him to such an accident seems to me to be immaterial, the work was ordinary work but it was too heavy for him. The fact that the result would have been contemplated as certain by a medical man if he had diagnosed the case is nothing to the purpose." In another case a workman ruptured himself in turning a wheel and the house of lords unanimously held that it was personal injury by accident. In a further case the judges stated that employers must pay compensation for internal injuries occurring in the course of workmen's employment no matter what his state of health. The *Lancet* concludes that "the case where a man carries about with him a fatal disease becomes a serious industrial problem." Would more frequent and systematic examination help to solve it? It could do so only by refusal to employ any one suffering from or even suspected to be suffering from any serious disease. Thus many men quite capable of suitable work would be prevented from earning a living. This would be a burden on the state and ultimately on industry. But one of the evils of democracy is that this consideration is disregarded, though such disregard in the pursuit of so-called social reform is largely responsible for our present industrial plight.

The Transmission of Yellow Fever over Continents

The possibility that increased facilities for traveling by train and air might lead to yellow fever being carried from West to East Africa and ultimately across Asia was put forward as a great danger at a meeting of the advisory committee of the Ross Institute for Tropical Diseases. Mr John Still of the Ceylon Association in London said that the death rate in the outbreak of yellow fever in Rio de Janeiro in 1929 was 59 per cent. Airplanes had rendered it possible to cross Africa within the period of incubation. The question also arose whether infected mosquitoes might not be carried by airplanes. The mosquito remained infected as long as three months

Experiments had shown that mosquitoes released in ordinary postal airplanes traveled 1,250 miles and survived three stops in airdromes where the crews were changed and baggage and passengers transferred. Twenty-two per cent of the test mosquitoes came through alive. It was known that thirteen species carried yellow fever and that monkeys, mice and other animals could be infected. Since the principal yellow fever mosquito was abundant all over the tropics, including East Africa and tropical Asia, the possibility of the disease being transferred by airplanes suddenly became of importance to the world. The permanent committee of the Office international d'hygiène publique, whose delegates represent fifty governments, has been engaged since 1929, in cooperation with the International Commission for Air Navigation in reviewing the risk of transmission of infectious diseases by aircraft. The result is the International Sanitary Convention of 1932, which regulates quarantine measures. None of its provisions have received more careful study from every angle than those relating to yellow fever. They are based on the recommendations of an expert commission of representatives of the British, French and Belgian possessions in Africa, of British India and of the American countries interested in the problem. At present no lines of air traffic have been established between the West Africa regions where yellow fever is endemic and other parts of Africa where the disease is unknown. The members of the International Sanitary Convention for Aerial Navigation unanimously agreed that in countries where yellow fever may exist they should not await the appearance of recognizable cases but take steps to search for unrecognizable ones by biologic methods and that measures for preventing spread by aerial traffic should be taken at the port of those areas where the disease exists.

PARIS

(From Our Regular Correspondent)

Feb 15, 1933

The Cost of Medical Education

The number of students enrolled in the French facultes de medecine continues to increase, far beyond the needs of the population, leaving out of the count the foreign students who are supposed to return to their native countries, although it appears that many of them remain in France. The number of new physicians entering medical practice, each year, greatly exceeds the number of deaths and retirements. The income of the physicians, except for the eminent practitioners located in the large centers, is modest indeed. In vain have the medical syndicates endeavored to induce the directors of the lycees and the colleges to use their influence with the parents of pupils who are graduated from these schools to direct their attention away from the profession of medicine, by emphasizing the disappointment that is in store for most of the younger physicians. With this in view, a journal published recently the cost of a medical education up to the time when a physician may count on acquiring a paying practice. The items include the cost of schooling, beginning with the first class in the lycee, and comprise the first five years of practice, years in which the profits from the profession do not cover the cost of living. The total is placed at 116,385 francs (about \$4,650). In this figure, the cost of enrolment and of the examinations amounts to nearly 4,000 francs (\$160). To this sum must be added the cost of a student's living for five or six years. These figures represent only the minimum of expenses absolutely required. If the future physician aspires to a position a little out of the ordinary, he must prepare for the competitive examination leading up to the post of hospital intern and chef de clinique, and then hospital physician. In that case, the duration of the studies is tripled, and the cost of living, without immediate financial profit, is greatly extended. The poor student, who cannot count on his family sending him an ade-

quate monthly check, is compelled to perform humble tasks outside his study hours, in order to eke out his slender income. Some students drive taxicabs at night or serve as ushers in theaters and motion picture houses.

Tuberculosis in Algeria

A great effort is to be made to reduce the spread of tuberculosis among the natives of Algeria. Prof. Leon Bernard, vice president of the Comité national de défense contre la tuberculose, has been sent to Algeria by the ministry of public health, charged with the organization of a new program of action in collaboration with the governor general. The consulting commission on tuberculosis, created last summer at Algiers, has already studied various prophylactic measures and the organization of hospitals. The campaign against tuberculosis presents great difficulties in Algeria, owing to the low standards of hygiene among the natives. The campaign that is to be undertaken, for which the appropriations are generous, is designed to check the progress of tuberculosis. A large number of the natives of Algeria were called to France, after the war, to supplement the lack of man power caused by the loss of a million and a half men, most of whom were farmers and workmen. These Algerian immigrants, mostly, were or became addicted to alcoholism, living in squalor and easily contracting tuberculosis in the factories. On returning to their country, where they were not so welcome owing to the unemployment among workmen, they brought tuberculosis into their native regions. Now, however, the public health service of Algeria has become active. The following figures give an idea of the extent of this movement. In 1920 the expenditures in this field amounted to about \$800,000, today they have risen to nearly \$5,000,000. The number of hospital beds has increased, in ten years, from 3,600 up to 6,900 beds for patients, and from 750 up to 2,150 beds for aged persons. The number of hospitalizations in 1910 was 35,000, in 1920, 42,000, and at present the number exceeds 70,000. The disappearance of epidemics, the diminution of the mortality, and the increase of the population (50,000 a year) prove that this effort is beginning to show results.

BERLIN

(From Our Regular Correspondent)

Feb 13, 1933

Roentgen Sound Film

The Hochschule für Musik has a radio experimental station in which Heinz Grosse has produced a film in which he synchronized roentgen pictures with corresponding sound records. One sees, for example, the diaphragm and heart of an athlete working in rhythmic agreement. The eye and the ear follow the motions and sounds associated with articulated words. Even when a person is silent, the sounds of his heart will be caught by the transmitter and will furnish an accompaniment to the roentgen pictures showing the pumping activity of the heart. Since heretofore heart sounds and murmurs have been reproduced without distortion by the method of Dr. Jacobsohn, he has been endeavoring to make records suitable for instruction purposes, and secondly, to reproduce the heart sounds and heart murmurs synchronously with the heart movements. From a number of single roentgen negatives, systole and diastole are selected and positives are prepared from them, the transitional movements between the two phases are represented artificially. Thus one procures a roentgen film of heart action, by taking into account the time factors affecting heart action and the speed with which the film pictures are presented, one can figure out the number of "frames" required for the various phases. For the preparation of the individual frames, Jacobsohn constructed a camera that represents a combination of photographic apparatus and cinema camera. The sound films that were first prepared and presented (a normal heart and

a heart with aortic insufficiency, which in the roentgenogram shows a projecting left ventricle and aortic arch) were synchronized with the artificial heart sounds. These artificial sounds, which Jacobsohn presented a year ago before the Berliner Medizinische Gesellschaft, are especially suitable for a sound film because of their freedom from disturbing factors in connection with high amplification (THE JOURNAL, April 2, 1932, p. 1199).

For the purpose of synchronization, Jacobsohn uses an electrical cardiac tachometer, which has a device gaged according to the frequency of the heart beat and connected with the heart sound generator. In this manner the number of sounds or murmurs produced when the film is reeled off at a given speed is determined and thus a synchronism between the pictures and the sounds is produced. The didactic value of the new method is based on the simultaneous optical and acoustic record of the heart action under normal and pathologic conditions.

Voluntary Sterilization

As times change, opinions change, and that applies also to medicine. In a recent letter (THE JOURNAL, Aug. 27, 1932, p. 774) mention was made of a legal action in which the question of sterilization was involved. But now the medical syndical organizations of Germany—the Deutscher Aerztevereinsbund in association with the Hartmannbund—have petitioned the federal ministry of the interior to draft, at the earliest possible moment, a federal law permitting and regulating sterilization on eugenic grounds. Sterilization would of course always be contingent on the consent of the patient or his legal representative. The medical profession of Germany expressed itself as opposed to compulsory sterilization.

The subject of eugenics and sterilization is to be discussed at length at the next Deutscher Aerztetag (1933), after the preliminary work has been done.

According to existing laws, eugenic sterilization is punishable as unauthorized bodily injury. At first, an endeavor was made to have a paragraph inserted in the penal code that would provide for exceptions to the law. What is now desired is not an exception to the law but that special legislation be enacted that will legalize, for the public welfare, what has heretofore been prohibited.

Sterilization would be permitted only with the consent of the person concerned or the legal guardian, and then only in case a commission appointed by the chief authorities in each land shall give its approval. This commission would consist of a judge and two physicians, one of whom should be familiar with the "laws" affecting hereditary transmission in man. The decision of the commission would include the reasons for consenting to or refusing the sterilization. The written decision would be transmitted to the petitioner and a copy would be filed with a specially designated registrar. The physician who undertakes such an operation would also file with the registrar a short statement setting forth his reasons for the operation. Only a physician licensed to practice in Germany would be permitted to perform sterilization. The commission would impose no fees on the person to be sterilized. In the case of indigent persons, costs of the operation would be met by the welfare department. All persons having knowledge of the operation would be pledged to secrecy.

For eugenic sterilization, the persons to be considered are those suffering from hereditary mental disease, mental weakness, epilepsy or any other hereditary disease, or who have morbid hereditary predispositions, if, according to the teachings of medical science, severe bodily or mental hereditary taints are extremely likely to develop in their offspring. The legislation will not consider the social indications for sterilization, as was feared by many, nor will it deal with the medical indications, which have to do with warding off a menace to life. Sterilization on the basis of recognized medical indica-

tions is permitted by the present penal code. The bill that is being proposed has to do with the welfare of the human race, whereas the social and the medical indications concern the welfare of individuals.

Humanity as a whole suffers constantly from the fact that the procreation of persons with sound hereditary characters is not sufficient to preserve its own numbers, whereas families with severe hereditary taints are propagated without check. It is difficult to restrict the propagation of persons with unsound hereditary characters. Such restriction is absolutely necessary for economic reasons, for the number of persons with serious hereditary taints, who become criminals or a burden to the public, is increasing. A diminishing number of persons capable of earning a living has to provide for an increasing number of economic incompetents. More than \$25,000,000 annually, and probably twice that sum, if everything is considered, is needed for institutional and welfare care of incompetents, whereas persons of sound body and mind suffer in large numbers for the lack of necessities of life. The prevention of propagation among incompetents by permanent segregation in institutions is economically impossible, so that no other way is left than the elimination of their procreative power.

Heart Disease in Railway Engineers

Professor Munk of Berlin has written an article in *Soziale Medizin* on the incidence of heart disease in railway engineers, in whom it appears justified to consider heart disease as an occupational disease. He points out that 36 per cent of the deaths among railway engine crews are due to heart disease, compared with 16 per cent among the male population over 20 years of age. The average age attained by members of engine crews is 50-55 years, which is below normal. Nearly 20 per cent of the men die before reaching the highest post that the service offers. Especially striking is the great frequency of sudden death due to heart attacks in the nature of angina pectoris or coronary sclerosis. The chief factors that play a part are the constantly fixed attention of the railway engineer during his run, his great sense of responsibility and moments of intense fear, the irregular hours of the service, lack of physical exercise resulting frequently in obesity and constipation, and working under intense heat (58 C, or 136 F, at height of head).

BELGIUM

(From Our Regular Correspondent)

Feb 2, 1933

The International League Against Quackery

The Ligue internationale contre le charlatanisme, simultaneously with the Ligue belge contre le charlatanisme, held a meeting during the Brussels medical week.

Dr Brandlight, after welcoming the foreign delegates, spoke on the value of an international organization to combat quackery. The campaign should be directed on an international scale by a committee acting in collaboration with the organization and the League of Nations. Dr Joly, the French delegate, pointed out the danger of entrusting to masseurs and to nurses slight medical interventions, as it leads the way to abuses. Furthermore, by encouraging in this way the illegal practice of medicine, the physician himself becomes a violator of the law.

After a discussion in which Mr Lint of Netherlands, the president of the league, and Mr Devis (a lawyer) took part, the assembly decided to confine the crusade to the countries in which laws, customs and the conception of charlatanry are essentially the same, that is, the countries of Europe.

It was decided to publish a periodical, which will be sent to the heads of the organizations in the various countries that are

members of the International Committee. In this periodical will be reported all the judicial decisions secured against charlatans, so that it will have value as a reference work for jurists. The assembly renewed then for the year 1932-1933 the instructions as to the duties of the International Committee. Each country participating in the movement will pay dues amounting to \$20.

The topic for the next meeting, to be held at Brussels in 1933, will be "The Definition in the Various Countries of the Term Charlatanry."

Fractures of the Calcaneum

At a special session of the Societe belge de medecine et de chirurgie du travail, Professor Lenormant delivered a lecture on fractures of the calcaneum. The two groups of these fractures depending on the manner in which they are produced are (1) fractures due to tearing of the achilles tendon, and (2) fractures due to crushing, by far the more numerous. The gravity of these fractures depends on the extent to which the compact upper articular surface is driven into the spongy substance of the bone. Lenormant divides these fractures into three groups, the first not being susceptible to surgical treatment, the two others justify surgical intervention.

Lenormant emphasized the importance of the structure of the calcaneum, which consists of spongy bone reinforced by three kinds of trabeculae: the posterior, extending downward and anteroposteriorly, the anterior, extending in the reverse direction, and the third group combining the two others. Between these trabeculae, the spongy tissue is soft and friable. In fractures due to crushing, the thalamus, or the compact articular surface, is driven into the cavity below, between the bony trabeculae. The extent to which the upper articular surface is driven in is indicated by the angle of the tuberosity (Bohler). The crushing of the thalamus causes a deviation of the articular surface of the astragalus, which is forced downward and backward.

Professor Lenormant took up the treatment of these fractures. For many years a let alone policy was usually pursued, but the results were poor. Surgical treatment then began to be considered. The first operation resorted to was astragalocalcanean arthrodesis (Van Stockum). Other surgeons performed astragalectomy (Leriche and Tanton). Leriche keeps the articular surface in place with the aid of the metal devices of osteosynthesis (Dujarier's clasps or Lambotte's treatment).

The method of Lenormant and Wilmoth consists in reducing the fracture by careful removal of the fragments and by keeping the thalamus in place with the aid of bone grafts taken at first from the external malleolus and later from the internal aspect of the tibia. The foot is immobilized by means of sacks of sand and then, after the skin sutures have been removed, it is put in a plaster cast. The cavity below the thalamus is obliterated by these grafts. The results shown by Lenormant were remarkable. The calcaneum is well reconstructed. The articular deviation is minimal. Certain cases, however, present ankylosis of the calcaneo-astragaloid and the calcaneocuboid articulations, without functional impairment. The grafts are well tolerated. After a few years, they are totally absorbed and their presence can no longer be detected in roentgenograms. The functional results are good.

Death of Professor Henrijean

The death of Professor Henrijean, professor of pharmacology and therapeutics in the Societe de medecine de Liege, is announced. Since 1905, he had been a corresponding member of the Royal Academy of Medicine of Belgium. He published reports on numerous experimental researches in pharmacodynamics. In recent years, he devoted himself to a comprehensive study of the electrical manifestations of the energy of the myocardium.

MOSCOW

(From Our Regular Correspondent)

Jan 30, 1933

Congress of Surgeons of the Soviet Union

The twenty-second congress of surgeons of the Soviet Union was held in Moscow in May, 1932. About 1,800 members and guests were present. The topics on the program were (1) endemic goiter in the Union of Socialist Soviet Republics, (2) treatment of patients after operations on the gastro-intestinal tract, (3) measures for combating industrial trauma, (4) the problem of surgical cadres, and (5) blood transfusion.

Prof V S Levite compiled a geographic map showing the increase in endemic goiter in the Soviet Union. In order to combat it, prophylactic measures must be taken, sanitary and hygienic conditions improved, and small doses of iodine used.

The care of patients after operations on the gastro-intestinal tract was discussed by V M Vosnesensky, who divides it in two parts: (1) general treatment to regulate the function of all the organs and (2) special treatment for different systems and organs. The latter consists in feeding as early as possible and not forcing an early emptying of the bowels. It is well to take away bandages that restrict the respiratory movements. The co author of this paper, M A Kimbarovsky, reported that among 3,000 patients who were allowed to get out of bed early the number of cases of embolism as well as the number of postoperative pneumonias decreased.

In the discussion, Zabludovsky and Hessin did not agree with Kimbarovsky. The organization of medical care for traumatic cases was discussed by Prof V Gorinevsky, who

Percentage of Postoperative Pneumonias

	1927 1928 Before	1929 1931 After
Having patients leave bed at an early period		
Operations on the stomach	12 5	2 34
Appendectomies	5 57	0 48

said that it is necessary to render aid at the place where the trauma is received. There must be transportation to carry patients to the local trauma station, where medical help can always be obtained. The trauma station of the local hospital is the next point of treatment. The introduction of socialistic labor, the reconstruction of factories, the seven-hour day and the six day week have decreased the number of cases of traumatism.

On the fourth day of the congress the question of anaerobic infection was discussed. Prof N N Bourdenko read a paper based on his observation of 128 cases of gas gangrene and on 1,383 cases of other Russian authors. Serotherapy combined with surgery is the best treatment. Serum must be injected before gas infection develops. N M Velikanov said that gas gangrene is caused by four types of bacteria living in earth. *Clostridium welchii* is found in the wound in from 44 to 90 per cent of all cases. *Clostridium oedematiens* in from 15 to 50 per cent, *Clostridium oedematis-maligni* in from 10 to 30 per cent and *Clostridium histolyticum* in 6 per cent.

In 1929, Velikanov prepared an antigangrene serum that saved twenty-three patients among thirty-four who had gas gangrene.

The last day of the congress was devoted to the present status of the problem of blood transfusion. Prof G I Spasocutsky said that blood transfusion may be used in acute anemia, chronic anemia, infections, intoxications and constitutional diseases.

Dr V I Bratzev of Moscow demonstrated his apparatus for collective transfusion and determination of blood groups.

The Leningrad surgical clinic reported 604 cases of blood transfusion. In 343 cases, the transfusion was made by the direct method. Only one patient died of hemolysis. The influence of hemolyzed and noncompatible blood is shown by a

decrease of blood pressure and spasm of the renal vessels. The patient dies of uremia.

In the discussion, attention was called to the importance of a correct determination of the blood group as well as to the technique of transfusion. Prof E Hesse noted that the direct method gives six times fewer complications than the citrate method and spoke against the use of uremic and eclamptic blood for transfusions.

The next surgical congress of the Union of Socialist Soviet Republics will be held this year in Leningrad.

BUCHAREST

(From Our Regular Correspondent)

Feb 23, 1933

The Impoverished Hospitals

It is rare that one hears in the national assembly an echo of the complaints relating to the conditions under which patients languish in the hospitals. Physicians have repeatedly warned the government that the contractors threaten the hospitals with stopping supplies of drugs and food if they do not get their money, but in vain. These unbearable conditions were the subject of a speech in the national assembly by Hudita, who detailed the miserable health conditions in the county of Baia. Similar conditions prevail in several other districts. He said that in the hospitals of this county the nurses have not been paid for six months, while the officials and others have received no pay for nine months. The subsidies received during 1932 were insufficient and the hospitals are entirely impoverished. Nobody wants a contract with the hospitals, so there is no food and drugs at the disposal of the patients. Hudita appealed to the minister of health, Joanitescu, to remedy these conditions. Joanitescu found that the facts exposed by Hudita are true, but these hospitals belong to the jurisdiction of the county magistrates and he is unable to do anything. He saw on a tour of inspection that the patients had no dressing supplies at their disposal at a hospital in this county. He brought before the ministerial council the terrible conditions in the 64 state and 229 county hospitals. He demanded that 60 million lei be granted to him from the income on duties on spirits to improve conditions in the hospitals. He could get only 10 millions. He realizes that in some parts of the country hygienic conditions are the worst imaginable, but he hopes that from the revenue of the state lotteries the public health service will receive funds. Dr Lupu complained of conditions in several provincial hospitals. In the country there is, so to speak, no public health service. In the whole country there are 300 hospitals maintained by the counties, but all these are situated in towns, and there are 1,620 regional dispensaries. The minister said that the mortality rate of children and the number of tuberculosis and syphilitic patients is deplorably high. The country has no more serious problems at present than the deplorable public health conditions.

Memorial to Physicians

On the initiation of Queen Marie, a committee was formed in 1919 to provide a fund for a statue to the memory of those physicians who died at the front. In the course of thirteen years, the committee raised, together with the interests, 3,456,901 lei (nearly \$20,500). The dedication of the monument took place this month, in the presence of the king. The dedicatory speech was made by Professor Stefanescu of Galatz, vice president of the Rumanian Medical Association. The imposing statue was carved by Rafael Romanelli, the Italian sculptor. The principal figure of the monument is a woman, personifying Rumania, who is placing a wreath on the head of a physician attending a wounded soldier. The monument has been erected in the vicinity of the faculty of medicine, on the Boulevard Independentei, in which district almost all streets are named after prominent physicians.

RIO DE JANEIRO

(From Our Regular Correspondent)

Feb 1, 1933

Congenital Absence of Left Adnexa

Dr Azael Lobe reported before the Society of Medicine and Surgery of Campinas at São Paulo a case of congenital absence of the left adnexa. The patient was a woman, aged 29, mother of seven children, of whom five are living. She had always menstruated regularly. During the operation for suspension of the uterus by means of the round ligaments, the author noted the absence of the left ovary and tube. The uterus was normal, as were the round and broad ligaments. There was no trace of the left ovary, and the tube was represented by a small protuberance at the uterine cornu. In such cases the homolateral kidney, as a rule is absent. In his case he found later, on cystoscopy, that the urine issued normally from the two ureteral openings, which shows the presence of the left kidney. Reports of cases of this kind are rare.

Research on Anatomy of the Phrenic Nerve

Dr Renato Locchi has made a systematic study on a series of white, Negro and half-breed cadavers in order to determine whether there are racial differences in the number and the location of the phrenic nerve and of the so-called accessory phrenic nerves. He has dissected 100 phrenic nerves. He concludes that (1) the third cervical root contributes more to the phrenic nerve in the Negro and the half-breed (50 per cent) than in the white, the so-called cranial migration of the phrenic nerve appearing to be more accentuated in their case, (2) in the material examined, the accessory phrenic nerves were frequent (71 per cent) and came in 52 per cent of the cases from the nerve to the subclavian muscle.

Lesions in Exanthematous Typhus

Dr Moacyr Amorim described previously the lesions he found in a necropsy in a case of typhus which, as in most cases, consisted of a hemorrhagic disturbance with septic infarcts of various viscera. He found in the cerebellum a few granulomatous nodules similar to those described by Popoff and Fraenkel, he also found the lesion described by Spielmeyer, which consisted of arborescent hyperplasia of the microglia, especially in the molecular layer. He says that the coexistence of these lesions with the usual lesions in other viscera is characteristic of the pathology of this disease. His communication was illustrated with projections of microscopic slides.

The Alkali Reserve in São Paulo

Dr Dutra de Oliveira has studied with the method of Van Slyke and Cullen the alkali reserve of the plasma in persons living in tropical climates. He estimated with the apparatus of Bailey the amount of carbon dioxide and of oxygen in the alveolar air. He found that the average alkali reserve of males is 57.8 per cent in São Paulo and 54.9 per cent in Rio de Janeiro, and of females 50.3 per cent in Rio de Janeiro and 53.5 per cent in São Paulo. These data do not agree with those obtained by Sundstroem in Australia, where the average was 64 per cent. In São Paulo the amount of alveolar carbon dioxide was 5.02 per cent, and of oxygen 14.7 per cent. On this point there is some relation with the average of Sundstroem, which was 5.12 per cent for males and 5.24 for females.

Postvaccinal Encephalitis

Dr Joaquim Pennino presented before his colleagues two cases of postvaccinal myelo-encephalitis. He compared the location and the nature of the lesions with those due to encephalitis. In giving the probable causes, he mentioned the following factors: (1) myelomic immaturity of the nervous system before the age of 3 years, (2) instability of the endocrine neurovegetative nervous system, making of the child in the first year of its life a megalosplanchnic biotype of low immunity, (3)

retardation, at times hardly apparent, of maturity of the nervous fibers, (4) neuropathic stigmas. These factors allow the vaccine virus to attack the central nervous system. The author advises the following rules for vaccination: (1) examination of the neuromuscular system, especially with regard to maturity, (2) production of not more than one pustule before the age of 3 years, (3) scarification as superficially as possible, (4) abstention from vaccination during the summer, whenever possible, because in this season the immunity of the child is low.

Perforation of the Stomach in Blastomycosis

Drs Lourival Santos and Floriano de Almeida state that blastomycosis in São Paulo is generally produced by *Paracoccidioides brasiliensis*. They cite a case of blastomycosis with perforation of the stomach due to a suppurating lymph node which produced necrosis of the serous and muscular tunics and subsequent perforation of the mucosa.

BUDAPEST

(From Our Regular Correspondent)

Feb 24, 1933

Experiments on Diabetes with Diathermy of the Pancreas

After long experimentation, Prof Alexander Korányi and Dr Zoltan Rausch succeeded in reducing the blood sugar in healthy subjects and also in diabetic patients by means of diathermy of the pancreas. The degree of reduction is slight as yet but is nevertheless encouraging. In cases of mild diabetes, the systematic use of diathermy of the pancreas with sittings of half an hour to an hour before the principal meals improved carbohydrate tolerance. In rather severe cases of diabetes, diathermy of the pancreas had not the slightest result, so that Professor Korányi refrained from repeating the experiments on such patients. Under the action of diathermy, the insulin production of the pancreas could be increased and, hand in hand with this, the glycolytic power of the blood, Korányi and Rausch concluded that, if there exists a sufficient quantity of interstitial cells, diathermy of the pancreas is likely to act favorably on diabetes and on all its symptoms, while if the reduction of the islands of Langerhans is of a great degree, caution must be observed, for there is the possibility of the exhaustion of the secretory function.

Pathetic Story of a University Professor

Dr Imre Basch, late director of the St. Stephen Hospital in Budapest, became ill some months ago with pain in his chest and difficult breathing. His physician friends assured him that his condition was not grave. He felt that his friends concealed the truth, and he tried a pious fraud. He wrote to Professor Finsterer in Vienna that a patient of his would call on him, whom he suspected to have cancer. He called on the professor, giving a false name. Finsterer made a thorough examination and said that he would give instructions as to treatment to his attending physician, Professor Basch of Budapest. In this letter he reported that his patient had cancer of the lungs and in his opinion had about two months to live. Instead of counting the days, Basch recalled the case of the bookkeeper in "Grand Hotel," who, having been told that he would die shortly, cast away in his last months all that he had saved during his lifetime. Professor Basch acted similarly. The temperate bachelor who had devoted all his energy to the furthering of medical science, threw himself into the night life. Although he had never tasted champagne, he began to indulge in alcohol. He danced into the night on that thin rope which separated him from death, said his friend at the funeral. This revelry hastened his death, which occurred last week. Professor Basch was a prolific writer on dermatology and venerology. His treatises would form volumes, had he published them in book form. As a teacher at the university he was foremost, as proved by the great number of his pupils.

Marriages

- BERNARD LAURISTON HARDIN, JR., Washington, D C, to Miss Dorcas Fletcher Hull at Pittsfield, Mass, March 11
HARRY BRYANT SMITH, Hartford, Conn., to Miss Isabel Frances Eveleth of Windsor, February 22
CHARLES BERKOWITZ, Chicago, to Miss Mary Aberbom of Winnipeg, Manit., Canada, March 19
FRANKLIN C BEEKS to Miss Katherine Bannon, both of Portsmouth, Ohio, recently
ERVIN B WALLACE, Baltimore, to Miss Helen Hauptert, recently

Deaths

John Francis Herrick ♂ Ottumwa, Iowa, Keokuk (Iowa) Medical College, 1891, member of the House of Delegates of the American Medical Association in 1931, past president of the Iowa State Medical Society, fellow of the American College of Surgeons, member of the Radiological Society of North America and the American College of Radiology, served during the World War, on the staffs of St Joseph and Ottumwa hospitals, aged 68, died, February 23

Douglas Hunt Stewart ♂ New York, College of Physicians and Surgeons in the City of New York, Medical Department of Columbia College, 1882, fellow of the American College of Surgeons, member of the American Urological Association, for many years on the staff of the Knickerbocker Hospital, aged 72, died, March 15, of cerebral hemorrhage and arteriosclerosis

Carl Otto Fischer, Brooklyn, Long Island College Hospital, Brooklyn 1916, member of the Medical Society of the State of New York, fellow of the American College of Surgeons, served during the World War, attending obstetrician to the Wyckoff Heights Hospital and the Bushwick Hospital, aged 45, died suddenly, March 9, of pulmonary embolism

William Thomas Gott, Crawfordsville, Ind., Eclectic Medical Institute, Cincinnati, 1878, member of the Indiana State Medical Association, since 1897 member, past president and secretary of the Indiana Board of Medical Registration and Examination, on the staff of the Culver Hospital, aged 77, died, February 24, of cerebral hemorrhage.

Ralph Waldo Hissem ♂ Wichita, Kan., University of Kansas School of Medicine, Kansas City, 1911, member of the American Urological Association, fellow of the American College of Surgeons, served during the World War, urologist to the Wichita Hospital, aged 47, died, February 27, of injuries received in an automobile accident

Harry French Hoyle ♂ Newburgh, N Y, Jefferson Medical College of Philadelphia, 1915, member of the Associated Anesthetists of the United States and Canada, past president of the Orange County Medical Society, aged 51, on the staff of St Luke's Hospital, where he died, February 28, of cerebral hemorrhage

Elston Hunt Bergen, Princeton N J, College of Physicians and Surgeons in the City of New York, Medical Department of Columbia College, New York 1877, bank president, formerly member of the board of health, on the staff of the Princeton Hospital, aged 81, died, March 8, of bronchopneumonia.

Bernard F Garnitz, Chicago, Loyola University School of Medicine, Chicago, 1921 member of the Illinois State Medical Society, aged 41, on the staff of the Evangelical Hospital, where he died, March 11, as the result of gunshot wounds inflicted by bandits, when he was lured by a false emergency call

Julius Theodore Haller ♂ Davenport Iowa Johns Hopkins University School of Medicine Baltimore, 1905 fellow of the American College of Surgeons on the staff of St Luke's Hospital, aged 54, died, February 28 of burns received when his automobile caught fire after plunging into a ditch

Harry Greensfelder, St. Louis, St. Louis University School of Medicine, 1903, member of the Missouri State Medical Association, veteran of the Spanish-American War, aged 54, died, February 26, in the Barnes Hospital, as the result of an injury received in a fall

Charles Lawrence Bradshaw, Crownsville, Md., Medical College of Virginia, Richmond, 1912, member of the Medical Society of Virginia, served during the World War, aged 44, on the staff of the Crownsville State Hospital, where he died, February 22, of erysipelas

Richard Gerstell, Keyser, W Va, University of Maryland School of Medicine, Baltimore, 1873, bank president, aged 81, died, January 13, in the Memorial Hospital, Cumberland, Md, of arteriosclerosis, hypertrophy of the prostate and bronchopneumonia.

John Carlton Brown, Williamsport, Pa, University of Buffalo School of Medicine, 1889, member of the Medical Society of the State of Pennsylvania, for many years on the staff of the Williamsport Hospital, aged 68, died, February 13, of heart disease

Archibald Daven Galloway ♂ Barron, Wis, Bennett College of Eclectic Medicine and Surgery, Chicago, 1908, member of the state board of medical examiners, part owner of the Riverside Hospital, aged 47, died suddenly, February 23, of heart disease.

Charles Carrell Krusen, Woodbury, N J, Hahnemann Medical College and Hospital of Philadelphia, 1921, county coroner, on the staff of the Brewer Hospital, aged 38, died, February 27, in the Hahnemann Hospital, Philadelphia, of heart disease.

Charles Wesley Thompson, Meadville, Pa., Medical Department of Western Reserve University, Cleveland, 1882, member of the Medical Society of the State of Pennsylvania, aged 74, died, Nov 21, 1932, of carcinoma of the esophagus

Michel Delphis Brochu, Quebec, Que, Canada, Laval University Faculty of Medicine, 1876, emeritus professor of medicine at his alma mater, formerly superintendent of the Beauport (Que) Insane Asylum, aged 80, died, March 12

George Edward Delaney, Galveston, Texas, University of Texas School of Medicine, Galveston, 1896, member of the State Medical Association of Texas, aged 58, died, February 20, in the John Sealy Hospital, of cerebral thrombosis

John H Rehberger, Baltimore, University of Maryland School of Medicine, Baltimore, 1873, member of the Medical and Chirurgical Faculty of Maryland, aged 82, died, January 22, of arteriosclerosis and chronic myocarditis

Walter Fisher Carstens, New Iberia, La, Medical Department of the Tulane University of Louisiana, New Orleans, 1901, health officer of New Iberia, aged 57, died, February 19, of cerebral hemorrhage

Mary West Niles, Pasadena, Calif, Woman's Medical College of the New York Infirmary for Women and Children, 1882, formerly a medical missionary, aged 79, died, February 4, of influenza and bronchopneumonia

Mell Aycock ♂ Atlanta, Ga, Emory University School of Medicine, Atlanta, 1917, served during the World War, on the staff of St Joseph's Infirmary, aged 39, died, February 25, of carcinoma of the liver

Henry Muetze, St. Louis Missouri Medical College, St. Louis, 1891, member of the Missouri State Medical Association, aged 69, died, January 25, in the Missouri Baptist Hospital, of cerebral hemorrhage.

Henry Joseph Keaney ♂ Everett Mass Baltimore Medical College, 1901, served during the World War, on the staff of the Whidden Memorial Hospital, aged 54, died suddenly, March 1, of angina pectoris

Frederic W Kuechler ♂ Newton, Ill, Medical College of Indiana, Indianapolis, 1893, formerly county coroner, member of the state legislature and bank president, aged 56, died, February 25, of uremia.

George F Cocker ♂ New Orleans, Medical Department of the Tulane University of Louisiana, New Orleans, 1898, aged 67, died, February 12, of cerebral hemorrhage, arteriosclerosis and nephritis

Harry W Subera, Sioux Falls, S D, College of Physicians and Surgeons, Keokuk, Iowa, 1884 member of the South Dakota State Medical Association, aged 85, died, January 28, of influenza.

Albert Herman Hundertmark, Los Angeles, Bennett Medical College, Chicago, 1913, member of the Illinois State Medical Society served during the World War, aged 44, died, February 10

George Howard Fay ♂ Auburn, Calif, Cooper Medical College, San Francisco, 1902, formerly secretary of the Placer County Medical Society, aged 68, died, February 24, of cerebral embolism

♂ Indicates Fellow of the American Medical Association

Samuel A V Christophine, Attapulcus, Ga., Southern Medical College, Atlanta, 1898, member of the Medical Association of Georgia, aged 64, died suddenly, February 22, of heart disease

William Stuart Grimes, East Detroit, Mich., University of Buffalo School of Medicine, 1901, aged 62, died, February 24, in St Joseph's Hospital, Mount Clemens, of gastric hemorrhage

Edward Haynes Woodruff, San Diego, Calif., McGill University Faculty of Medicine, Montreal, Que., Canada, 1890, aged 75, died, January 16, of chronic nephritis and heart disease

Adam Rush King, Fort Worth, Texas, Hospital College of Medicine, Louisville, Ky., 1905, member of the State Medical Association of Texas, aged 55, died, February 14, of heart disease

Gilbert Clement McMaster ♂ Pittsburgh, Western Pennsylvania Medical College Pittsburgh, 1903, served during the World War, aged 57, died, February 7, of coronary disease

John Rollin Shultz ♂ Charleston, W Va., Medical College of Virginia, Richmond, 1918, on the staff of the Mountain State Hospital, aged 42, died, February 6, in a local hospital

Jay Wesley Hamilton, Jacksonville, Ill., Missouri Medical College, St. Louis, 1880, on the staff of the Illinois State Hospital, aged 75, died, February 20, of lobar pneumonia

James Edward O'Donohue, Floral Park, N Y., Long Island College Hospital, Brooklyn, 1885, aged 72, died, January 23, of chronic interstitial nephritis and uremia

Seth Andrew Light ♂ Lebanon, Pa., University of Pennsylvania School of Medicine, Philadelphia, 1904, aged 58, died, February 10, of coronary thrombosis and nephritis

Margaret M Morris, Los Angeles, University of Southern California College of Medicine, Los Angeles, 1907, aged 62, died, January 12, of carcinoma of the stomach

John Henry Riley, Adams, Mass., University of Vermont College of Medicine, Burlington, 1885, aged 80, died, February 6, of hemorrhage of the cerebral artery

William H Oliver ♂ Bryan, Texas, Medical Department of the Tulane University of Louisiana, New Orleans, 1890, aged 63, died, February 7, of heart disease

George P Rishel, Philadelphia, University of Pennsylvania School of Medicine, Philadelphia, 1883, aged 80, died, January 4, of carcinoma of the stomach

Frederick Hutchison ♂ Aldie, Va., Washington University School of Medicine, Baltimore, 1876, aged 80, died, February 20, of cerebral hemorrhage

Morris Winston Gibbs, Lynchburg, Va., Medical College of Virginia, Richmond, 1912, aged 54, died, January 28, in Bellevue, of cerebral hemorrhage

Joseph Pendleton Stovall, Sardis, Miss., Memphis (Tenn.) Hospital Medical College, 1883, aged 76, died, February 15, of cerebral hemorrhage

W Worley Damron, Carbondale, Ill., St. Louis College of Physicians and Surgeons, 1904, aged 53, was killed, Dec 23, 1932, when struck by a train

John Wesley Jennings, Mohawk, N Y., Albany (N Y.) Medical College, 1896, aged 65, died, February 14, of bronchopneumonia and undulant fever

Emily Irvine Smith, Windsor, Ont., Canada, University of Toronto Faculty of Medicine, 1890, aged 64, died, Dec 20, 1932, of pneumonia

Samuel E Reynolds, Elizabethton, Tenn., Eclectic Medical Institute, Cincinnati, 1891, aged 69, died, February 10, of cerebral hemorrhage

Hugo Sittel Weusthoff, Cranford, N J., Miami Medical College, Cincinnati, 1880, aged 73, died, Dec 30, 1932, of lobar pneumonia

Edwin Webster Shearburn, Fairbury, Neb., Chicago Homeopathic Medical College, 1902, aged 70, died suddenly, Dec 11, 1932

Frederick T Foard, Hickory, N C., Louisville (Ky.) Medical College, 1886, aged 76, died, February 4, of cerebral hemorrhage

Edward G Stout, Earlville, N Y., Albany Medical College, 1896, aged 60, was found dead, February 15, of angina pectoris

Wilhelm Becker, Milwaukee, Milwaukee Medical College, 1897, aged 62, died, February 17, of heart disease

Gus H Covington, Wadesboro, Ky. (licensed, Kentucky, 1893), aged 89, died, February 25, of pneumonia

Correspondence

METHYLENE BLUE AND CYANIDE POISONING

To the Editor —Attention has recently been drawn (Brooks, Matilda M. *Am J Physiol* **102** 145 [Oct] 1932 Geiger, J C. *THE JOURNAL*, Dec 3, 1932, p 1944 Hanzlik, P J, *ibid*, February 4, p 357 Eddy, N B. *J Pharmacol & Exper Therap* **41** 449 [April] 1931 Hug, Enrique. *Compt rend Soc de biol* **111** 519, 1932) to the earlier observation (Sahlin, B. *Skandinav Arch f Physiol* **47** 284, 1925) that the injection of methylene blue antagonizes the toxicity of hydrocyanic acid administered to animals and man. The explanation of this protective action of the dye is of interest from several points of view: its bearing on the mechanism of tissue respiration, the possibility that other more effective antidotal agents may be found, and the limit to which protection against hydrocyanic acid poisoning may be expected from the dye and similarly acting substances. The purpose of this communication is to point out a few facts which bear on these questions.

Sahlin, Eddy and Brooks have expressed the view that the dye acts in overcoming cyanide poisoning by providing a substitute for the normal cellular catalysts of respiration which are inactivated by cyanide. Although this is a natural inference, in view of the known effect of methylene blue in partially restoring the respiration of certain hydrocyanic acid poisoned tissue or cell suspensions in vitro, it can be easily shown that a quite different explanation is the correct one as regards the antidotal action of the dye toward hydrocyanic acid in intact animals. It is known that methylene blue both in vivo (Combemale, M. *Compt rend Soc de biol* **43** 300, 1891) and in vitro (Wendel, W B. *Proc Soc Exper Biol & Med* **27** 624 [April] 1930 Wendel, W B, and Shaffer, P A. *J Biol Chem* **87** 11 [June] 1930 Warburg, O, Kubowitz, F, and Christian, W. *Biochem Ztschr* **227** 245, 1930) catalytically converts hemoglobin into methemoglobin, and that methemoglobin forms with hydrocyanic acid an unusually stable compound, cyanmethemoglobin. So firm is this union that hydrocyanic acid is removed with difficulty if at all by a vacuum, and methemoglobin may be used as an effective reagent for absorbing hydrocyanic acid from exceedingly dilute solutions or gases. From these facts it would seem to follow that formation of methemoglobin by the injected methylene blue leads to fixation of hydrocyanic acid as cyanmethemoglobin within the blood cell, whether the hydrocyanic acid enters the blood stream by absorption from the lungs, the alimentary tract, or the tissues into which it might have penetrated before the dye has been injected. If this is the correct explanation, a like or better protection from hydrocyanic acid poisoning should be afforded by the injection of methemoglobin alone, or by other agents which form methemoglobin more rapidly.

Experiments that confirm these expectations are to be reported before the American Society of Biological Chemists at its April meeting. In the meantime a paper has just appeared by Hug (*Compt rend Soc de biol* **112** 511, 1933) in which the same facts are recorded and the same conclusions are drawn. It is therefore timely that the results that Hug and I have obtained be brought to the attention of those interested in hydrocyanic acid poisoning.

The reinjection (intravenously) into dogs of the cells from 20 cc of blood per kilogram of body weight, the hemoglobin of which has been converted to methemoglobin (by amyl nitrite, the excess nitrite being removed) effectively protects the animals from the toxic effects of a lethal dose of hydrocyanic acid. Also, the same volume of methemoglobin cells when injected into animals approaching death from a lethal dose of hydrocyanic acid rapidly revives the animals.

Hug finds that sodium nitrite (which is well known to form methemoglobin) is much more effective than methylene blue in protecting from cyanide. And in his most recent paper he finds that pyrogallol, pyrocatechol and phenylhydrazine have a similar effect.

As the antidotal action depends on conversion of oxygen-carrying blood pigment (hemoglobin) into nonfunctional pigment (cyanmethemoglobin), it follows that the successful use of methylene blue, or any other substance which acts in a similar manner, is limited by the extent to which this transformation is compatible with life. Probably not more than one half to two thirds of the hemoglobin can be spared under such circumstances without leading to asphyxia from insufficient oxygen transport. Since the normal hemoglobin content of dogs or man is about 0.7 to 0.8 millimols (as oxygen capacity) per kilogram of body weight, four lethal doses of hydrocyanic acid (0.44 millimols per kilogram, according to Hug) would inactivate about 60 per cent of the total blood pigment. As a matter of fact, this is the maximum dose from which Hug finds nitrite to afford protection. Analysis of the available data on the case of cyanide poisoning in man that was successfully treated with methylene blue (Geiger) serves as a further illustration. The amount of cyanide (potassium cyanide) absorbed (1 Gm less 0.05 Gm removed from the stomach) probably inactivated hemoglobin equivalent to about 16 liters of blood, or perhaps one fourth to one third of the total. Such a loss of oxygen-carrying capacity need not be serious. The absorption, however, of 2 Gm of potassium cyanide probably, and the absorption of 3 Gm almost certainly, would have been fatal in spite of the administration of methylene blue.

It appears to follow from the foregoing considerations that a possible protective action of methylene blue against the effects of hydrocyanic acid on the tissues is not susceptible of demonstration with the intact animal, because the animal will die from loss of functional hemoglobin before there is a surplus of hydrocyanic acid present to inactivate the tissue catalysts.

WILLIAM B WENDEL, PH D, St Louis
Instructor in Biological Chemistry, Washington
University School of Medicine

THE MATERNITY WARD OF THE GENERAL HOSPITAL

To the Editor—As honest doctors we are our own severest critics. Dr DeLee's recommendations are sound but temporarily impractical.

Here are some figures from Detroit, which no doubt are being duplicated all over the country. The maternal mortality from 1928 through 1932 was 65 per thousand live births. Contrary to European statistics, this includes deaths from criminal abortions. In 1929, 33 per cent of all deaths and 59 per cent of septic deaths were due to abortions. These cannot be laid at the door of the obstetrician. Correcting the records for this inclusion reduces the rate to about 45.

During this period there were 8000 deliveries in Harper Hospital with a death rate of 29, and 10500 births in Providence Hospital with a mortality of 37. The figures for this city at large include these cases.

Two other facts are noteworthy. 1 The most seriously ill patients are sent to the hospital and among them the death rate is high. 2 Hospital cases are subject to searching inquiry by the medical staff, and hence their statistics are accurate. There is not such an accurate check up on the causes of death in home deliveries.

Providence Hospital caters to the general practitioner and receives many complicated cases. Harper Hospital is patronized more by the specialist and draws a more carefully selected class of patients. Both institutions have mortality rates well below

that of the district. Both are general hospitals subject to the disadvantages claimed by Dr DeLee.

Great movements have intangible reasons unexplainable by cold figures. Hospitalization of maternity cases is due to many factors, including (1) much better anesthesia and (2) correct surgical repair of lacerations.

Hospitals need not be "cesspools of infection." Puerperal sepsis (not including septic abortions), accounting as it does for only 25 per cent of all deaths in the Detroit area, is not as great a danger as one would gather from Dr DeLee's article. Add to his remedies (1) better instructions in obstetrics both for undergraduates and for postgraduates, (2) elevation of the obstetric division of the hospital to a plane equal to that of medicine and surgery, (3) education of the public to the fact that having a baby merits as much thought as being operated on for appendicitis or gallstones.

HAROLD HENDERSON, M D, Detroit

"ERADICATING BOVINE TUBERCULOSIS"

To the Editor—THE JOURNAL of February 18 contains an editorial called "Eradicating Bovine Tuberculosis" which has some queer statements in it. What is meant by "It has also been demonstrated that the usual form which tuberculosis of the bovine type takes in the human patient is the nontuberculous, especially bone and gland"?

Your writer has evidently not read correctly the classic article by Koch published in 1882. A few quotations from it will suffice. "It became evident that, just as the picture of the disease is the same, whether produced by all the enumerated different substances, so do the bacillary cultures obtained from the lungs of apes, miliary tubercles from the brain and enumerated by him in a preceding paragraph included tubercles from the lungs of human beings, caseous materials from phthisical lungs, and nodules from the lungs and the peritoneum of cattle with present in various tuberculous processes cannot be doubted" (Human lungs with miliary tuberculosis, caseous pneumonia, sucht in cattle). "Miliary tuberculosis, caseous pneumonia, perlsucht in cattle, spontaneous and infectious tuberculosis, animals, must, according to my investigations, be declared identical" (translation of "Die Aetiologie der Tuberkulose," by Dr and Mrs Max Pinner, N T A, 1932).

Koch said that though he thought there might be some differences, he had been unable to detect them. Theobald Smith, in 1896 (not 1898, as given by your writer) first showed that there was a distinct difference between the human and the bovine organisms. His second paper appeared in 1898.

The first scientific proof that the bovine tubercle bacillus was dangerous to man was given from the Laboratory of the State Live Stock Sanitary Board of Pennsylvania, April 24, 1902. The work by Park and Krumwiede did not appear for some eight years after and was stimulated by Koch's second statement made at a congress in this country, that the bovine tubercle bacillus did not cause pulmonary tuberculosis in human beings. Your writer has also apparently never heard of the work of the Royal Commission on Tuberculosis in England, or the Imperial Commission in Germany.

MAZACK P RAVENEL, M D, Columbia, Mo

COMMENT—Dr Ravenel's first criticism is of the statement "It has also been demonstrated that the usual form which tuberculosis of the bovine type takes in the human patient is the nontuberculous especially bone and gland." In this sentence the nontuberculous should have read nonpulmonary, this being an error in copy which was not detected during revision.

The historical references relating to the development of our knowledge of tuberculosis are incidental to the main purpose of the editorial. It is, of course, correct that Koch's original work regarded the bovine and human forms as identical, but later he did hold that the germs were of different type and also that the bovine bacillus was incapable of infecting man. A statement to this effect was published in *THE JOURNAL*, Feb 20, 1926, and was apparently not challenged at that time. In the historical references it was not deemed necessary to cite all the supporting evidence, such as the work of the Royal Commission on Tuberculosis, in England, or the Imperial Commission, in Germany.

While Dr Ravenel's criticisms are correct, it does not appear that they affect the essential correctness of the facts presented in the editorial as a basis for the argument that bovine tuberculosis requires eradication.—Ed

THE FACTS ABOUT A REPRESENTATIVE SOUTHERN COUNTY

To the Editor—Many years ago I heard a rather intelligent chap say that there are three degrees of untruth: lies, damned lies and statistics. This remark has been recalled a number of times lately, when reading matter relating to the Report of the Committee on the Costs of Medical Care, and expresses excellently my opinion of the whole proceedings.

It is extremely easy to collect a set of figures that can be interpreted in any way that any one of a dozen people wish to do. The committee (save the mark) has turned out a striking example.

An interesting illustration has just reached me. Surveys of the Medical Facilities in Three Representative Southern Counties, one being Lee County, Mississippi. This "representative" county, according to the information given in the survey, is "comparatively small" and its "per capita spendable money income" is 11 per cent plus less than the average for the state. How, then, can it be classed as representative?

It spends \$11.14 per capita for medical care, and out of this it supports a thirty-five bed hospital and some thirty-eight rattling good doctors, many of whom I know personally.

For fourteen years it has had a full time health department, which now carries five full time employees. "Some of the smaller towns have local physicians who serve as health officers (without salary or specific duties)." In other words, they do what is needed without any higher-up specifying what they are to do.

The survey says "The prevalence of malaria is a serious problem in the rural areas of this county." Its health officer says "Within recent years numerous drainage problems resulted in marked improvement of health conditions, especially in the prevention of malaria."

The survey says "Cotton is the chief product the money derived from the sale of cotton is received only once a year consequently many particularly of the tenant farmer class are virtually without cash income for the major part of the year." The health officer says "Most every farmer owns high-bred Jersey cattle, many of which are registered, and the production of dairy products has increased very rapidly for the past few years. Milk and cream routes are established by or near most every farm in the county, and deliver these products at Tupelo. The growing of strawberries and truck farming is proving very valuable in some sections of the county."

With these errors as to conditions in the county it is not surprising that one finds other errors when it comes to a consideration of medical conditions.

The survey says "In the absence of adequate personnel for all phases of health department work, school hygiene, immunization, and a general program of health education have been

considered of greater immediate importance than maternal, infant, and preschool hygiene." The inference is that the latter have been neglected. The report of the health officer states that clinics are held in different communities throughout the county regularly each month and that midwives are required to bring their cases to the clinic for general examination. Wassermann tests are made, and urinalyses made regularly every two weeks. Home visits are made by the nurses. Pre-school clinics have been held throughout the county for both white and Negro children during the summer and fall months of each year. The attendance in general has been good. The quotations from the county health officer are taken from his report to the state board of health and the legislature and cover a period of two years ended July 1, 1931.

All of which would go to show that the people of Lee County are not in such an awful fix after all, even if they do not spend per capita as much for medical care as the executive committee of the committee considers a safe minimum.

E F HOWARD, M D, Vicksburg, Miss

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

URETHRITIS OF ALLERGIC ORIGIN

To the Editor—In *Queries and Minor Notes* (*THE JOURNAL*, February 18) is a discussion of nongonorrheal urethritis. I have found a number of these cases to be due to food allergy, idiosyncrasy or whatever such reactions should be called. I have had three within the past year due to the drinking of tomato juice in excess, another from oranges and apples, and one from wheat bread and strawberries. One of the tomato patients tried it out on three separate occasions at intervals of two months and each time the discharge returned, to stop in a few days after discontinuance of the drink. He has never had gonorrhea. However, he gets urticaria and asthma from eating pork sausage. Most of the cases I have seen are in young men who state that they have not had gonorrhea. Certainly no gonococci can be found in the discharge, which consists mostly of mucus with a moderate amount of pus cells. The prostates are larger than normal and boggy at the time the discharge is present. I suspect many of the cases of long drawn out thin discharges following gonorrheal infection are due to this idiosyncrasy to food rather than to any residual inflammation. It will well repay investigating this angle of these cases. I always read the department of *Queries and Minor Notes* first. There is a lot of good stuff there for general practitioners.

M D

ANSWER—Food allergy is a distinct cause of irritable bladder. Resistance is low in a patient suffering from intrinsic allergy. It is in line with good thought to believe that a slight catarrhal discharge with or without superimposed nongonorrheal infection could complicate chronic allergy.

It is important to remember that food allergy can give rise to mucous membrane edema, congestion, and mucous discharge and smooth muscle spasm in any part of the body, and that the bladder and urethra and even the ureters are not exempt. Perennial hay fever due to food sensitization producing nasal congestion, occlusion and mucoid discharge exemplifies such reactions in the nasal tissues. Mucous colitis is frequently due to food allergy, and recently leukorrhea has been described as one of the manifestations of uterine allergy. Bladder allergy was originally described by Duke and corroborated in a recent monograph on food allergy. The presence of eosinophilic leukocytes in the secretion would point toward allergy. The cystoscopic appearance of the bladder would be of interest, and such examinations should rule out definite pathologic changes. Hivelike swellings in the bladder mucosa have been seen. It may be mentioned that burning in the bladder and urethra often is extremely severe and persistent in bladder allergy, and spasms and pain in the urogenital tissues are frequently present. Excoriation of the vulval tissues extending to the adjacent skin has been reported, but similar lesions in the male tissues have not been recorded. In all problems of allergy especially those due to food, it is important to remember that many of the symptoms may be similar to those caused by infections and other disease types, though allergy may coexist with such conditions.

Thus this diagnosis of allergic urethritis is probably correct and should be kept in mind by physicians in handling urologic

problems Allergy should be suspected especially in patients who have a personal or family history of hay fever, asthma, eczema, urticaria, angioneurotic edema, migraine or abdominal allergy. Histories of definite food dislikes or idiosyncrasies may or may not be elicited. Skin tests may indicate the causative foods but are frequently negative, especially in adults. Intradermal tests with active dependable sterile extracts are more valuable than are scratch tests. However, such reactions are often nonspecific and hard to interpret and their etiologic significance must be checked by actual food trial. "Elimination diets" modified by a history of food idiosyncrasies and skin reactions are of value in the determination of food allergies, particularly when diets based on reacting foods do not produce relief or when skin reactions are negative in a patient suspected of food allergy. The principles underlying these diets and the importance of absolute cooperation of the patient must be realized by physicians who use them.

SEBORRHEIC DERMATITIS PSORIASIS OF SCALP OR PITYRIASIS RUBRA PILARIS

To the Editor—A woman, aged 52, past the climacteric, well nourished began to be troubled about three years ago with a disorder of the scalp. There has been no loss of hair. The lesions appear in isolated spots with a desquamation and under these scales they are hyperemic and dry. The scales are white and may be small or enlarged flakes. The condition appears on the anterior hair border or on the superior surface of the scalp. The patient is constantly annoyed by the desquamation. There is no particular itching. It will almost clear up at times and then comes back. I have tried many lotions and shampoos and oils. The one treatment that has seemed to do the most good is a strong exposure to ultraviolet rays. I will appreciate any suggestion in the way of diagnosis and treatment.

E B MINOR, M D, Traverse City, Mich

ANSWER—Seborrheic dermatitis and psoriasis are the common diseases causing such involvement of the scalp. Pityriasis rubra pilaris may begin in the scalp but it begins usually at an earlier age, seldom remains so long confined to the scalp, and produces greasy scales, which mat together to form thick masses.

If this is seborrheic dermatitis, it is an unusual case because of the absence of itching or any tendency to loss of hair in three years, and the large dry flakes that form.

Psoriasis of the scalp may appear and persist for some time without appearing on the glabrous skin. It causes no itching or loss of hair and involves the frontal hair border as described. The patches are sharply circumscribed and tend to form heaped up scales if not constantly treated.

Either of these diseases might yield to ultraviolet rays but the readiness with which this case yields is unusual for psoriasis.

So long as this ready response to ultraviolet radiation continues, no other form of therapy can be suggested that is so clean and pleasant to use. After the scales have cleared up as a response to this treatment, a stimulating lotion such as

Corrosive mercuric chloride.	Gm or Cc.
Resorcinol monoacetate	0.2 to 0.4
Castor oil	60
Spirit of formic acid	60
Compound spirit of myrcia	20.0
Alcohol	30.0
Distilled water	30.0
	to make 120.0

may be used, shaken and applied with a medicine dropper, then well rubbed into the scalp. Daily, vigorous brushing with a stiff bristle brush is recommended. The castor oil may be omitted if the hair does not need it and the corrosive mercuric chloride increased or decreased as judged best. Frequent use of a tar shampoo, for instance,

Coal tar solution	Gm or Cc.
Liniment of soft soap	3.6
	to make 120.0

may be recommended

IMMUNIZATION AGAINST SCARLET FEVER

To the Editor—Will you be kind enough to give me any information regarding E. R. Squibb and Son's product for scarlet fever immunization treatment? How long does this last? Are there any reactions? Is it safe to use on children of all ages? Are there any contraindications? Should they be tested before administration or after? Is it recommended by any state health department? Please give me any further facts that you may have. Please omit name.

M D, Illinois.

ANSWER—It has been found that active immunization with graduated doses of scarlet fever toxin, if carried to the point of an entirely negative skin test, may be expected to last for a period of at least four to five years in more than 90 per cent of the persons thus immunized. Statistics from groups retested at longer intervals are not yet available.

There are reactions during the course of active immunization. These reactions may consist of local redness and swellings, or in more highly susceptible persons there may be general reac-

tions associated with fever, nausea and rash which usually disappear within forty-eight hours.

According to the information thus far available, it is safe to immunize children of all ages, including infants.

Exceptional individuals are sensitive to broth and in these individuals urticaria may develop within a few minutes after injection of any preparation containing broth, including scarlet fever toxin and diphtheria toxoid. The development of urticaria in such individuals may usually be prevented by injection of 0.2 cc of a 1:1,000 solution of epinephrine hydrochloride taken up in the same syringe with the immunizing dose.

It is advisable to make tests for susceptibility to scarlet fever before immunizing against the disease, because many persons are spontaneously immune to the disease and do not require immunization. Retests should always be made after immunization.

Scarlet fever immunization is employed by a number of the state health departments, including Illinois, Michigan and Kentucky.

These answers are made on the assumption that the questions concern scarlet fever toxin for active immunization rather than scarlet fever antitoxin for temporary passive protection, and they apply to the E. R. Squibb & Sons product as well as to the other commercial products now on the market in the United States.

EFFECTS OF COLD QUARTZ ULTRAVIOLET RAY ON EYE

To the Editor—Would it be possible for a patient to get permanent injury to the eyes, with the cold ray ultraviolet one minute at 24 inches? The eyes were unprotected but did not look directly at the light all the time. There was some pain and burning four or five hours later, but the whole condition apparently cleared up within two or three days. Five weeks later the patient began complaining of weak eyes and one physician attributes this to the ultraviolet. Is it possible that the patient has received a permanent injury? Please omit name and address.

M D, Kansas

ANSWER—There are two types of cold quartz ultraviolet generators: the official applicator and the grid type for body radiation. The correspondent was apparently using the latter type. About 94 per cent of this lamp's radiation of wavelengths less than and including 313 millimicrons is contained in the resonance emission line at 254 millimicrons.

Only visible rays, i. e., rays between 760 and 380 millimicrons, are capable of penetrating the crystalline lens, producing physiologic photochemical changes in certain cells of the retina.

Rays from 380 to 295 millimicrons are absorbed by the lens and cause it to fluoresce, which seems to act as a protection to the retina. If an eye in which the lens has been enucleated is irradiated with these rays, certain changes occur in the cells of the retina at once or in several hours, but they return to normal in a few days.

Radiation of a wavelength less than 295 millimicrons is absorbed by the cornea and conjunctiva.

The lamp mentioned by the correspondent gives 94 per cent of its radiation at the line of 254 millimicrons. This radiation, at the distance of 24 inches for one minute, could cause a conjunctivitis and a cloudiness of the cornea. There should have been an interval of a few hours before this occurred. These conditions disappear in a few days, and with this dose of ultraviolet radiation, no permanent injury should occur.

SALE OF SPECTACLES AT CHEAP RATES

To the Editor—Here is a newspaper clipping from a Cleveland news paper. According to this ad a person can get his eyes examined for which I get from \$5 to \$10 together with a pair of glasses for \$4.50. This is less than the wholesale price of the same glasses from the American Optical Company. Can you kindly tell me where they get these glasses? Are they any good? I am informed that one company in Cleveland does a \$60,000 optical business a year. Certainly this cannot all be humbug. Another company in Akron does a \$20,000 optical business a year. The result is that my refraction business is chimerical. Is it possible to buy glasses cheaper than those obtainable from the American Optical Company etc.? It seems to me that something ought to be done, and I ask your cooperation in this matter.

FRED V GAMMAGE, M D, Akron Ohio

ANSWER—Optical merchandising principles do not vary materially from the principles of merchandising of other goods, and in the optical trade there are first, second, third and ad infinitum qualities of goods exactly as there are in the cloak and suit business. A suit may be purchased from \$10 to \$100, depending on the quality of the material and the character of workmanship employed in production. Optical goods have a similar range in price affected by the same factors, but unfortunately the public cannot differentiate between first quality and shoddy optical goods. Therefore the cut-rate optical houses, the chain store opticians, the blatant "low-price" houses, the optical

Book Notices

How to Budget Health Guilds for Doctors and Patients By Evans Clark, Director Twentieth Century Fund, Inc. Published for the Twentieth Century Fund, Inc. Cloth. Price, \$4 Pp 328, with 11 illustrations New York & London Harper & Brothers, 1933

The reader of this book can scarcely fail to be impressed with the idea that the purpose of the book, coming as it did so closely on the heels of the Report of the Committee on the Costs of Medical Care, is to bolster the views expressed in the majority report of that committee. Although the report mentioned is referred to frequently, nothing is said about the fact that the views contained in the majority report were not unanimously concurred in, actually, of course, there were two minority reports, one of them signed by a considerable number of the physicians on the committee who are engaged in treating the sick, and two dissenting opinions by laymen who would not sign the majority report.

The author of this book is the director of the Twentieth Century Fund, Inc., the founder of which, Edward A. Filene, was greatly interested in developing the committee, as stated in an editorial in *THE JOURNAL*. Although this interest and initial stimulus has been denied by some members of the executive board of the committee, the following statement is found in Mr. Clark's preface:

The Twentieth Century Fund has for some years been interested in the solution of this problem. Its president, Edward A. Filene, was active in the formation of the Committee on the Costs of Medical Care which has now completed a five year program of research designed to obtain the essential facts of the situation and to suggest constructive measures for the mitigation of existing evils. The Twentieth Century Fund assisted in underwriting the organization of the Committee in 1927 and the formulation of its program. It also made annual contributions toward its work.

How to budget health is described in chapter 1, as the medical guild plan. The material in chapter 1 has been taken largely from an article by the director of the fund which appeared in the *Atlantic Monthly* in October, 1930, entitled "A Cure for Doctors' Bills."

A medical guild may be defined as "an institution which combines all of the following elements: (1) an all-around medical service, including hospitalization, without any drastic limitations and exceptions, through a well balanced group of doctors, (2) a fixed annual fee covering such service, and (3) periodic health examinations," this service to be given to all members or subscribers of the guild. Medical guild seems to be but another term for group practice or hospital medical center, as proposed in the majority report of the Committee on the Costs of Medical Care. The guild plan, however, is elaborated on much more extensively and contains features not brought out in the report. It is a utopian scheme designed to relieve the medical profession, or at least those members who constitute the guilds, of which there may be many, of their worries and cares by creating for them a larger and more stabilized net income, and for the members or subscribers of the guild the highest type of complete medical service at a lower operating cost, for a fixed fee.

In the succeeding chapters an attempt is made to convince one how these two commendable but somewhat contradictory ends may be accomplished. A group of well established doctors of the highest medical attainments are to organize and incorporate as a guild.

The next question is how to secure members or subscribers. It is supposed that each doctor in the group as soon as the formation of the guild has been publicly announced would bring all of his families and patients into the guild as subscribers. This would start the guild right with several hundred or possibly thousand subscribers, depending on the number and standing of the medical men comprising the guild. Other persons would become attracted to the plan (so it is thought) by favorable friendly newspaper articles and "by personal solicitation by the word of mouth of satisfied patrons." "Even a new and independent guild organization would of necessity be automatically self recruiting."

The problem of "selling" the guild to the public is obviously of primary importance. It must "not violate the ethics of the profession as interpreted by those who control its destinies in the locality where the guild is established." The methods

used to recruit members are by paid advertisements, by direct mail promotion and by personal solicitation—methods that are contrary to recognized ethical ideas.

"Any estimate of the fee to be charged by the medical guild depends necessarily on two factors:

"*The size of the guild* The cost must be guessed in advance in order to show how much income must be obtained per year to cover the expenses of operation.

"*The number of subscribers* The fee charged to each subscriber would vary directly with the number called upon to divide the costs." The cost of adequate medical care is placed at \$42.55 per person, which sum "may be taken as a rough estimate of the fee which medical guilds would have to charge. It must be carefully noted, however, that this is an *average* figure. The costs in large centers like New York and Chicago would be greater than smaller towns and consequently guild fees would have to be higher. It is probable, however, that guild service could be given even in the largest cities for from \$50 to \$60 per year per person."

It is frankly admitted that, if the older men with well established practices could not be induced to give up their private work and join a guild, younger men, recent interns or assistants might be secured for the salaries paid.

At one place it is stated that these guilds would be successful financially and be able to pay the physicians larger salaries than they had earned in private practice. At another it is claimed that for the first few years they would not be able to meet expenses and that it would be necessary to have some kind of philanthropist subsidize the guilds in order that they may be able to pay the running expenses. Another solution of this phase of the question which is proposed by the author is that the state by general taxation pay the subscription fee for all those who are unable to pay it themselves. This is but another way of proposing compulsory health insurance under government supervision.

In discussing the guild plan, Mr. Clark says that it was found to be illegal in New York State, where it was suggested that it might be tried, as "the general rule that a corporation cannot practice medicine is well established in New York." It is also pointed out that the scheme would probably come under the laws governing insurance agencies. However, the author naively remarks that there may be some way found to beat the law.

The book makes an evening's interesting reading, but the scheme proposed is so replete with uncertainties and objectionable features that it cannot be said to offer much of value in solving the question of medical care for the people.

Précis clinique et opératoire de chirurgie infantile Par L. Ombredanne, professeur de clinique chirurgicale infantile à la Faculté de médecine de Paris. Third edition. Cloth. Price, 140 francs. Pp 1479, with 1008 illustrations. Paris: Masson & Cie 1932.

The first edition of Ombredanne's monograph on clinical and operative pediatric surgery appeared in 1923. The book is one of a set known as the Collection de précis médicaux, consisting of short works or compendiums especially for students and physicians who desire a concise volume. Although prepared in a handy size and as a compendium, this edition covers so many pages that, in combination with comparatively small type, it is in reality a textbook. It is well illustrated. The material is divided into two parts. The first part, covering about 250 pages, deals with general pathology. After a short discussion concerning the question of anesthesia, preparation for operation, hemostasis and postoperative complications, this section ends with a discussion of rapid death occurring postoperatively with pallor and hyperthermia, a condition that occurs most frequently in infants between the ages of 6 days and 6 months, less often during the last six months of the first year, and later, being progressively rarer as the age increases. Without claiming to know the cause, the author says that it is not due to dehydration, bronchopneumonia, hemorrhage, shock or swallowed blood and that there is no proof that it is caused by hepatic insufficiency, acute hydrocephalus, anaphylactic shock or traumatic shock, though these all are spoken of hypothetically. Prophylactic measures advocated are continuance of the usual regimen, avoidance of purging, the use of general anesthesia, rapid performance of operations, and certain postoperative measures. If the condition has developed, he recommends cold baths, beginning at room

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temperature and gradually being made colder. The bath lasts two hours, and, after an intermission of two hours, if it is still indicated, it is repeated. In addition, he gives epinephrine by mouth, 3 drops at a time, with the feedings, up to a total of from 20 to 30 drops. The other topics discussed in the first part include traumatism, dystrophies of bones, infections of bones and joints, and tumors. The second portion of the volume, of about 1,200 pages, consists of regional presentation of the pathologic conditions and surgery of infancy. The congenital malformations of each region are discussed first, and then the acquired lesions and diseases. Etiology, pathology, symptoms, diagnosis and treatment are fully presented. Indications for and descriptions of operations are given in detail. Only those procedures are described which the author has found to be of value and can personally recommend. The material has been brought down to date, is surprisingly full for a volume for students and, indeed, is of interest and value for any surgeon who is able to read French.

Diseases of the Mouth. By Sterling V. Mead, DDS, M.S., B.S., Professor of Oral Surgery and Diseases of the Mouth, Georgetown University Dental School. Fourth edition. Cloth. Price \$10. Pp. 932, with 563 illustrations. St. Louis: C. V. Mosby Company, 1932.

This book attempts to cover in a comprehensive manner the whole field of pathology, diagnosis and treatment of all diseases of the mouth. The author states in the introduction, "This volume has been written primarily as a textbook for dental and medical students." Since neither the physician nor the dentist is likely to be favorably impressed by the manner in which his particular field is covered, one may question the attainment of the purpose quoted. The pathologist is faced by not less than sixty photomicrographs either without significance or unsuited for the purposes of teaching and illustration. The material on laboratory technic is covered much more adequately in the special textbooks on laboratory diagnosis. Such subject matter as that on dental caries (chapter vi) must prejudice the dentist against the book as a whole. The clinical surgeon must lose faith in an author who proposes in the chapter on osteomyelitis (p. 640) that "at least 30 ounces of orange juice should be taken daily." On the other hand, there are features of the book that are highly commendable, which, in spite of the defects just mentioned, will recommend it to many for use either as a textbook or as a reference book. The text is complemented by numerous accurate reproductions of roentgenograms covering a wide range of conditions, the subject matter on diagnosis, testing tooth vitality and use of transillumination is well worth reading and careful study, and each chapter is followed by a comprehensive bibliography.

Der Abtissin Hildegard von Bingen Ursachen und Behandlung der Krankheiten (causae et curae). Uebersetzt von Professor Dr. Hugo Schulz. Paper. Price 10.80 marks. Pp. 235. Munich: Verlag der Aerztlichen Rundschau Otto Gmelin, 1933.

The author, who combines linguistic scholarship with an intuitive understanding of the spirit of the twelfth century, deserves thanks for making it easy to study one of the earliest documents of German monastic medicine. It is a strange mixture of the teachings of Galen, revived at the school of Salerno, and of the teachings of the Bible. Intermingled with the theological theories are the keen personal observations of the nun, her quite modern conceptions of the constitutional fundamentals of human disease, and an insight into the insufficiency of the pharmaceuticals of her time. "These prescriptions have been given by God himself, and they will either cure man or he has to die, or God does not desire that he shall be cured from his disease."

A New Physiology of Sensation Based on a Study of Cardiac Action. By W. Burridge, D.M., M.A., Professor of Physiology, Lucknow University. Cloth. Price \$1.50. Pp. 70. New York & London: Oxford University Press, 1932.

Although this small volume may contain a record-breaking philosophical discussion of a physiologic process, namely, sensation, it seems rather to be a word or sentence salad. A newly coined jargon used in well rounded sentences gives the reader no inkling of what the author has in mind in spite of the sixty-seven pages of text. No practitioner of medicine will care to read the book.

Economic Mammalogy. By Junius Henderson, Curator of University of Colorado Museum and Elberta L. Craig, Museum Assistant. Cloth. Price, \$1.60. Pp. 397. Springfield, Illinois: Charles C. Thomas, 1932.

The authors have attempted to bring together from widely scattered sources as much information as possible concerning the economic relations of mammals both to one another and to man. It has been impossible to include the entire 12,540 species and varieties of mammals known to exist on earth, but most of those in North America as well as many in other parts of the world are discussed. The book is divided into two parts. Part I deals with a general discussion on such topics as mammals as a source of food, their relation to the industries such as the fur and leather trades, and their esthetic relations to man, as pets and as game, and so on. In the two short chapters on diseases of animals and their parasites, it is disappointing to note that, while a whole page is given over to the discussion of tularemia, the much more economically important disease of bovine tuberculosis is dismissed with one sentence quoting statistics eighteen years old. Part II is devoted to a systematic discussion of various orders and families, from the primitive egg laying mammals of Australasia to the primates up to but not including man. This furnishes a quick reference, giving the salient facts concerning the economic importance of the various mammals. The book is written in a readable language which does not require an extended knowledge of zoology to understand. There are copious footnotes and references on almost every page, which form the chief recommendation for the publication.

Medicolegal

Practice of Dentistry by a Corporation

(*Parker v. Board of Dental Examiners of State of California* (Calif.) 14 P. (2d) 67)

A corporation, operating under the corporate name "Painless Parker Dentist," was organized under the laws of California to conduct, own, operate and control dental offices. It appointed one of its incorporators, Painless Parker by name, a licensed dentist, as its manager and chief surgeon. The corporation, in conjunction with another, the Associated Dental Supply Company, operated a chain of dental offices. Parker employed a licensed dentist to manage each office, and each such manager employed licensed dentists to perform necessary dental operations in the office in his charge. Parker, however, maintained the management and supervision of the entire business. The California board of dental examiners deemed Parker's conduct unprofessional and suspended for five years his license to practice dentistry. The district court of appeal, first district, division 2, California, set aside the order of the board (*Parker v. Board of Dental Examiners*, 1 Pac. (2d) 501, *THE JOURNAL* 98 2311 [June 25] 1932). The board thereupon appealed to the Supreme Court of California.

The board contended that conducting, owning, operating and controlling dental offices constituted the practice of dentistry within the purview of section 11 of the dental practice act, that a corporation cannot be licensed to practice dentistry, and that any licensed dentist who aids a corporation in performing any of the acts named above is aiding "an unlicensed person" to practice. Parker claimed, however, that the term "unlicensed person," as used in the prohibition of "aiding and abetting any unlicensed person to practice dentistry unlawfully," refers only to natural persons, who might be licensed under the act, and not to a corporation owning or operating a dental office.

It must be conceded, said the Supreme Court, that the legislature has power to regulate the practice of dentistry. Good moral character and "fitness" to practice dentistry are statutory requirements imposed by the dental practice act. The letter of the act authorizes persons only to engage in the practice of dentistry. The underlying theory on which the whole system of dental laws is framed is that the state's licensees shall possess consciousness, learning, skill, and good moral character, all of which are individual characteristics, and none of which is an attribute of an artificial entity.

Surely the state, for the better regulation of the practice of dentistry and as a means of preventing evasions of the law, and with the object of more readily fixing statutory responsibility, has the power to limit such practice to natural persons.

Parker insisted that there is a distinction between the practice of dentistry, which the statute undertakes to regulate, and the purely business side of the practice, and that if the management or conduct of the "business side" by a layman is inhibited by statute, then the statute is to that extent unconstitutional. But, said the Supreme Court, the law does not assume to divide the practice of dentistry into departments of that kind. The subject is treated as a whole and must be so treated necessarily. If Parker's contention is sound then the proprietor of the business may be guilty of gross misconduct in its management and violate all standards which a licensed dentist would be required to respect, and stand immune from any regulatory supervision whatsoever. His employee, the licensed dentist, would also be immune from discipline, on the ground that he was but a mere employee and was not responsible for his employer's misconduct. Public policy will not countenance such a condition. If Parker's contention is sound, the dental practice act is impotent to accomplish the purpose it was intended to serve, namely, to promote the safety, health and welfare of the people of the state.

In the opinion of the court, the corporate practice of dentistry tends to relegate the welfare of the patient to the pecuniary interests of the corporation. In this case, the court said, *Painless Parker Dentist*, a corporation, and the *Associated Dental Supply Company*, a corporation, are the employers of *Painless Parker*, the licensed dentist. The corporations, which are purely commercial enterprises and none of whose directors need be licensed dentists, are the masters of the situation and may with or against the wish of *Painless Parker*, the dentist, employ such licensed persons as may be to their commercial advantage, having less regard for the skill or fitness of the persons so employed than would a licensed proprietor who is solemnly charged by the obligation he assumes to the state to respect the salutary provisions of the dental practice act. If *Painless Parker*, the licensed dentist, owed his first allegiance to his employers, the corporations, then he owed but a secondary and divided loyalty to the patient.

The practice of dentistry is not open to commercial exploitation. Such would be its fate if the methods adopted by Parker, the defendant, should become general. That a corporation may not practice law, medicine or dentistry is a settled question in California. These professions, involving a relationship of a personal as well as a professional character, cannot be placed in the same category as pharmacy, architecture or other vocations wherein no such relationship exists.

Parker contended that the long period of time during which he had operated and the interpretation that the board and its legal advisers had placed on the dental practice act during that period in permitting him to operate were entitled to weight in this proceeding. For a period of some fourteen years, said the court, the board and Parker have had frequent controversies as to the legality and professional propriety of the methods he employed in the practice of dentistry. At no time was the subject set at rest. Delayed action, however, on the part of those charged with the execution of a law will not be permitted to annul the law. It may be considered by the court as a reason for mitigating punishment, but the court is not absolutely bound to regard it.

For the reasons stated, the order of the board suspending Parker's license to practice dentistry for five years was affirmed.

Epidemic Meningitis an Accidental Injury—*Arquin*, an intern in the Cook County Hospital, assigned to the contagious ward, contracted epidemic meningitis and died. His widow sought compensation under the Illinois workmen's compensation act. An award by an arbitrator in her favor was set aside by the industrial commission but affirmed by the circuit court, Cook County, and by the Supreme Court of Illinois. An injury, said the Supreme Court, may be occasioned as readily by disease as by a blow. A disease accidentally acquired may be an accidental injury. When *Arquin* contracted epidemic meningitis and died, he died as the result of an accidental injury arising out of and in the course of his employment as an intern in the Cook County Hospital.—*Arquin v Industrial Commission (Ill)*, 181 N E 613

Society Proceedings

COMING MEETINGS

- Alabama, Medical Association of the State of, Montgomery, April 18-21
Dr D L Cannon, 519 Dexter Avenue, Montgomery, Secretary
- American Association for the Study of Goiter, Memphis, Tenn., May 15 17
Dr J R Yung, 670 Cherry Street, Terre Haute, Ind., Secretary
- American Association for Thoracic Surgery, Washington, D C, May 9 11
Dr Duff S Allen, 3720 Washington Boulevard, St. Louis, Secretary
- American Association of Anatomists, Cincinnati, April 13 15 Dr George W Corner, University of Rochester School of Medicine, Rochester, N Y, Secretary
- American Association of Genito-Urinary Surgeons, Washington D C, May 8 10 Dr Henry L Sanford, 1621 Euclid Avenue, Cleveland, Secretary
- American Association of Pathologists and Bacteriologists, Washington, D C, May 23 Dr Howard T Karsner, 2085 Adelbert Road, Cleveland, Secretary
- American Bronchoscopic Society, Washington, D C May 10 Dr Edwin McGinnis, 104 South Michigan Boulevard, Chicago, Secretary
- American Gastro Enterological Association, Washington, D C, May 8-9
Dr John Bryant, 311 Beacon Street, Boston, Acting Secretary
- American Gynecological Society, Washington, D C, May 8 10 Dr Otto H Schwarz, 630 South Kingshighway, St. Louis, Secretary
- American Laryngological Association, Washington, D C May 9 10 Dr George M Coates, 1721 Pine Street, Philadelphia, Secretary
- American Neurological Association, Washington, D C, May 9 11 Dr Henry A Riley, 117 East 72d Street, New York, Secretary
- American Ophthalmological Society, Washington, D C, May 8 10 Dr J Milton Griscom, 2213 Walnut Street, Philadelphia, Secretary
- American Orthopedic Association, Washington, D C, May 8 10 Dr DeForest P Willard, 1916 Spruce Street, Philadelphia, Secretary
- American Otological Society, Washington D C, May 8 9 Dr Thomas J Harris, 104 East 40th Street, New York, Secretary
- American Pediatric Society, Washington, D C, May 8 10 Dr Hugh McCulloch, 325 North Euclid Avenue, St. Louis, Secretary
- American Physiological Society, Cincinnati, April 10 12 Dr Frank C Mann, Mayo Institute, Rochester, Minn., Secretary
- American Society for Clinical Investigation, Washington, D C, May 8
Dr H L Blumgart, Beth Israel Hospital, Boston, Secretary
- American Society for Experimental Pathology, Cincinnati, April 10 12
Dr C Phillip Miller, Jr, University of Chicago Department of Medicine, Chicago, Secretary
- American Society for Pharmacology and Experimental Therapeutics, Cincinnati, April 10 Dr V E Henderson, Medical Building, University of Toronto, Toronto, Canada, Secretary
- American Society of Biological Chemistry, Cincinnati, April 10 12 Dr Howard B Lewis, University of Michigan Medical School, Ann Arbor, Mich., Secretary
- American Surgical Association, Washington, D C May 8 10 Dr Vernon C David, 59 East Madison Street, Chicago, Secretary
- Arizona State Medical Association, Tucson, April 20 22 Dr D F Harbridge, 822 Professional Building, Phoenix, Secretary
- Arkansas Medical Society, Hot Springs, May 2-4 Dr William R Bathurst, 814 Boyle Building, Little Rock, Secretary
- Association of American Physicians, Washington, D C May 9 10 Dr James H Means, Massachusetts General Hospital, Boston, Secretary
- California Medical Association, Del Monte, April 24 27 Dr Emma W Pope, 450 Sutter Street, San Francisco, Secretary
- Congress of Physicians and Surgeons of North America, Washington, D C, May 9 10 Dr John T King, Jr, 1210 Eutaw Place, Baltimore, Secretary
- Connecticut State Medical Society, Hartford, May 24 25 Dr Charles W Comfort Jr, 27 Elm Street, New Haven, Secretary
- District of Columbia, Medical Society of the, Washington, May 3 Dr C B Conklin, 1718 M Street N W, Washington, Secretary
- Federation of American Societies for Experimental Biology, Cincinnati, April 10 12 Dr C Phillip Miller, Jr, University of Chicago Department of Medicine, Chicago, Secretary
- Georgia Medical Association of, Macon, May 9 12 Dr Allen H Bunce, 139 Forrest Avenue, N E, Atlanta, Secretary
- Harvey Cushing Society, Louisville, Ky., April 13 14 Dr Tracy J Putnam, 818 Harrison Avenue, Boston, Secretary
- Illinois State Medical Society, Peoria, May 16 18 Dr Harold M Campbell, Labl Building, Monmouth, Secretary
- Iowa State Medical Society, Des Moines, May 10 12 Dr Robert L Parker, 3510 Sixth Avenue, Des Moines, Secretary
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- Mississippi State Medical Association, Jackson, May 9 11 Dr T M Dye, Clarksdale, Secretary
- Missouri State Medical Association, Kansas City, May 1-4 Dr E J Goodwin, 634 North Grand Boulevard, St. Louis, Secretary
- Nebraska State Medical Association, Omaha, May 23 25 Dr R B Adams, Center McKinley Building, Lincoln, Secretary
- New Hampshire Medical Society, Manchester, May 16 17 Dr D E Sullivan, 7 North State Street, Concord, Secretary
- New York Medical Society of the State of, New York, April 3 5 Dr Daniel S Dougherty, 2 East 103d Street, New York, Secretary
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- Northern Tri State Medical Association, La Porte, Indiana, April 11 Dr E P Gillette, 320 Michigan Street, Toledo, Ohio, Secretary
- Oklahoma State Medical Association, Oklahoma City, May 15 17 Dr C A Thompson, Commercial National Bank Building, Muskogee, Secretary
- Society for the Study of Asthma and Allied Conditions, Washington D C, May 6 Dr W C Spain, 116 East 53d Street, New York, Secretary
- South Carolina Medical Association, Spartanburg, April 18 19 Dr E. A Hines, Seneca, Secretary
- South Dakota State Medical Association, Huron, May 15 17 Dr John F D Cook, Langford, Secretary
- Tennessee State Medical Association, Nashville, April 11 13 Dr H H Shoulders, 706 Church Street, Nashville, Secretary
- Texas, State Medical Association of Fort Worth, May 8 11 Dr Holman Taylor, Medical Arts Building, Fort Worth, Secretary
- West Virginia State Medical Association, Charleston, May 8 10 Mr Joe W Savage, Professional Building, Charleston, Secretary

Current Medical Literature

AMERICAN

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Titles marked with an asterisk (*) are abstracted below

American Heart Journal, St Louis

8 155 296 (Dec.) 1932

- *Cholical Type of Paroxysmal Tachycardia of Ventricular Origin in Which Paroxysms Are Induced by Exertion F N Wilson S W Wishart A G Macleod and P S Barker Ann Arbor Mich—p 155
- Further Observations on Heart in Old Age Postmortem Study of Three Hundred and Eighty One Patients Aged Seventy Years or More F A Willius and H L Smith Rochester Minn—p 170
- Rheumatic Heart Disease II Incidence and Distribution of Age of Death D Davis and Soma Weiss Boston—p 182
- Experiences with Dermatherm (Tygos) in Relation to Peripheral Vascular Disease II Study of Abnormal Conditions H C Eddy and H P Taylor Cleveland—p 190
- *Unusual Dilatation of Left Auricle C F Nichols and H W Ostrum Philadelphia—p 205
- *Spontaneous Rupture of Aorta H Arenberg Ellis Island N Y—p 217
- Variations in Potency of Certain Commercial Preparations of Digitalis R L Levy H G Bruenn and S S Ellis New York—p 226
- Minimal Toxic and Lethal Dosage of Digitalis in Experimental Hyperthyroidism and Hypothyroidism. R G Hahn Boston and H Rosenblum San Francisco—p 235
- Observations on Electrocardiography in Heart Disease Associated with Pregnancy with Especial Reference to Axis Deviation F B Carr Worcester Mass and R S Palmer Boston—p 238
- Notes on Heart Failure Report of Case of Pure Left Ventricular Failure H M Korns Iowa City—p 242
- Note on Transmission of Aortic Systolic Murmurs to Abdominal Aorta R F Hiestand and R S Morris Cincinnati—p 249
- Occurrence of Subacute Bacterial Endocarditis in Mitral Valvular Disease, with Preexisting Auricular Fibrillation Case Report. C E de la Chapelle and I Graef New York—p 252
- Effect of Asphyxia and of Anoxemia on Electrocardiogram W B Kountz, St. Louis and M Hammouda Cairo Egypt—p 259
- Paroxysmal Hypertension Associated with Ganglioneuroma of Supra renal Medulla. Evelyn Rogers New York—p 269
- Amplifier for Heart Sounds Operating on Alternating Current. F D Johnston and L I Barbier Ann Arbor Mich—p* 275

Paroxysmal Tachycardia of Ventricular Origin—Wilson and his associates report four cases of paroxysmal tachycardia and review the eighteen cases reported in the literature. They conclude that there is a type of paroxysmal ventricular tachycardia in which the abnormal mechanism is induced by emotion and exertion. The attacks may be long, but more often short attacks separated by periods of extrasystolic arrhythmia occur in rapid succession. In the majority of the cases there is no other evidence of cardiac disease. Patients with this disorder are usually seriously incapacitated. Small doses of quinidine are often beneficial but do not always prevent the occurrence of attacks. In one of the cases studied by the authors a long paroxysm of ventricular tachycardia was frequently interrupted temporarily by short attacks of paroxysmal auricular tachycardia.

Dilatation of Left Auricle—Nichols and Ostrum present five cases showing unusual dilatation of the left auricle. Esophageal obstruction was produced in two and was so pronounced in one as to lead to gastrostomy. In three of the patients the left auricle extended far to the right and formed a portion of the right cardiac border. Early in the disease roentgen examination is essential for the correct diagnosis, but in later stages diagnosis may be suspected clinically from fairly suggestive physical signs. The symptoms, physical signs, pathologic changes and vascular dynamics of this condition are reviewed. It is practically always seen in rheumatic hearts with mitral stenosis and auricular fibrillation. The exercise tolerance and lack of congestive failure in some patients is remarkable.

Spontaneous Rupture of Aorta—Arenberg gives a detailed report of a case of spontaneous rupture of the aorta into the pericardium in which careful histologic examination failed to reveal contributory pathologic changes. Instances of such spontaneous rupture are not rare, but the condition is

practically never recognized during life. A review of the literature shows that such ruptures occur twice as frequently in males as in females, age seems not to be an important factor, in many instances no changes have been found in the aortic wall, and most of such tears take place in the ascending aorta and are transverse. At first usually the rupture involves only the intima and the media, the latter is then separated from the adventitia by a dissecting hematoma, which ultimately ruptures through the adventitia at some distance from the point of the primary tear. Frequently the external rupture takes place into the pericardial sac.

American Journal of Physiology, Baltimore

102 527 726 (Dec 1) 1932

- Intraperitoneal Administration of Viosterol in Mice J W Spies and G P Lyman New Haven, Conn—p 527
- Excretion of Urine in Dog VI Filtration and Secretion of Exogenous Creatinine. J A. Shannon N Jolliffe and H W Smith New York—p 534
- Some Mechanisms Involved in Regulation of Circulation W F Hamilton Washington, D C—p 551
- Movements of Base of Ventricle and Relative Constancy of Cardiac Volume W F Hamilton and J H Rompf Washington, D C—p 559
- Studies in B Vitamins I Statistical Comparison of Small and Large Litters of Rats on Normal Stock Diet C U Moore, H B Plymate Bessie J Andrew and Viola White Portland Ore.—p 566
- Id II Statistical Comparison of Rat Litters on Normal Stock Diets with Litters on Synthetic Diets Containing Varying Amounts of Vitamin B Complex and Combinations of B₁ and B₂ C U Moore H B Plymate, Bessie J Andrew and Viola White, Portland Ore—p 573
- Id III Evidence of Third Vitamin B Factor in Yeast (B₄) as Shown by Growth Curves and Clinical Symptoms of First and Second Litter Young of Mothers Raised on Synthetic B₁ and B₂ Diets C U Moore H B Plymate and Bessie J Andrew, Portland Ore—p 581
- Id IV Report of Litters Obtained on Diet in Which Feces Were Supplied as Sole Source of Vitamin B C U Moore H B Plymate and Viola White Portland Ore—p 593
- Id V Study of Myelin Degeneration in Peripheral Nerves of Rats as Associated with Low Vitamin B Content of Diet C U Moore H B Plymate and Bessie J Andrew Portland Ore.—p 598
- Id VI Further Consideration of Pyloric Obstruction in Rats C U Moore and H B Plymate Portland Ore.—p 605
- *Effect of Celiac Ganglionectomy on Sugar Tolerance of Dogs G de Takats and F P Cuthbert Chicago—p 614
- Blood Uric Acid Following Intravenous Administration of Uric Acid in Normal Dogs C M Wilhelm and S L Moskowitz Omaha—p 620
- Effect of Anoxemia on Digestive Movements of Stomach G Crisler, E J van Liere and W T Booher Morgantown W Va.—p 629
- *Effect of Small Quantities of Galactose on Human Respiratory Exchange T M Carpenter and R C Lee Boston—p 635
- Comparison of Respiratory Exchange of Men and Women as Affected by Ingestion of Galactose T M Carpenter and R C Lee Boston—p 646
- Comparison of Effects on Human Respiratory Exchange of Hexoses Ingested Separately and Together T M Carpenter and R C Lee, Boston—p 659
- Diurnal Cycle in Liver I Periodicity of Cycle with Analysis of Chemical Constituents Involved G M Higgins J Berkson and Eunice Flock, Rochester Minn—p 673
- Electromyographic Studies of Gastro-Intestinal Tract I Correlation Between Mechanical Movement and Changes in Electrical Potential During Rhythmic Contraction of Intestine J Berkson E J Baldes and W C Alvarez Rochester Minn—p 683
- Effects of Cortico-Adrenal Extract on Glycolysis In Vitro H Silvette.—p 693
- *Blood Cellular Changes in Adrenal Insufficiency and Effects of Cortico-Adrenal Extract E L Corey and S W Britton, Charlottesville, Va.—p 699
- Influence of Cortico-Adrenal Extract on Energy Output E Eagle, S W Britton and R Kline Charlottesville Va.—p 707
- Study on Metabolism of Glutathione. V Schelling—p 714

Effect of Celiac Ganglionectomy on Sugar Tolerance—De Takats and Cuthbert studied the effect of celiac ganglionectomy on the sugar tolerance of normal dogs. They observed that the intravenous sugar tolerance of normal dogs does not vary spontaneously under basal conditions. The removal of the celiac ganglion results in a decided, persistent rise in tolerance in every instance. Dextrose administered intravenously disappears more rapidly from the blood stream than before the operation. The dogs become more susceptible to insulin. Denervation of the liver does not have a similar action. These data show that the celiac ganglion mediates nerve impulses, the exclusion of which brings about either an increased insulin production or a reduction in the insulin requirement.

Effect of Galactose on Human Respiratory Exchange—Carpenter and Lee determined the effects of the ingestion of from 5 to 40 Gm of galactose on the respiratory quotient and the total metabolism in a human subject by means of an open

circuit respiration apparatus and a helmet. The base line for the day was measured in from three to four fifteen-minute periods, and ten fifteen-minute periods were run after the sugar was taken. The subject had a low tolerance for this sugar, as the total reducing substances in the urine for approximately three hours varied from 0.7 Gm after the ingestion of 5 Gm to 3.1 Gm after the ingestion of 40 Gm of galactose. All amounts of galactose caused a rise in the respiratory quotient, the maximum rise in a period varying from 0.04 with 5 Gm to 0.17 with 40 Gm. This sugar somewhat resembles fructose in its effects on the quotient, although it differs from both fructose and dextrose in that there was a fall to below the preingestion level during the latter part of the two and one-half hours after ingestion. The rise in apparent carbohydrate combustion varied from 1.1 to 1.28 Gm, which represented from 13 to 32 per cent of the amount ingested. The maximum increase in heat production over the base line level in a fifteen minute period varied from 10 per cent with 10 Gm to 18 per cent with 40 Gm. The summation of increases in heat production in successive periods varied from 0.6 calory with 5 Gm to 12.6 calories with 40 Gm and the specific dynamic action varied from 3 to 8 per cent. Galactose resembles fructose in its effects on the respiratory quotient and carbohydrate combustion and resembles dextrose in its effects on the heat production.

Cortical Suprarenal Extract and Blood Cells—Corey and Britton state that suprarenalectomy produces marked numerical changes in the cellular elements of the blood. With the development of symptoms of suprarenal insufficiency, the erythrocytes commonly increase from 50 to 100 per cent, this change is probably due to fluid loss from the blood. The total leukocyte counts are meanwhile found to be decreased to a similar extent. There are pronounced reductions in the neutrophil counts, sometimes almost to the disappearing point. The lymphocytes show a concomitant increase in percentage. The administration of cortical suprarenal extract to animals suffering from severe suprarenal insufficiency and showing profound blood cellular disorganization resulted in complete restitution of the normal cell values. Recovery of the blood cell elements to normal values was coincident with general improvement in the condition of the animal. Control experiments with epinephrine, dextrose and saline solutions were negative, with the exception of the partly effective action of epinephrine on the white rat. There were no noteworthy leukocytic changes in the splenectomized controls. Splenectomysuprarenalectomized animals showed responses after operation and after extract treatment, however, which were similar to those mentioned. The authors consider the possibility that the neutrophilopenia of suprarenal insufficiency is related to the clinical condition of "agranulocytosis."

Am J Roentgenol & Rad Therapy, Springfield, Ill

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- Treatment of Epithelioma of Skin. Indications for Radium Therapy. L. Taussig, San Francisco—p 721
- Radiation Therapy of Cancer of Skin. M. Cutler, Chicago—p 724
- *Squamous Cell Carcinoma of Skin. C. L. Martin, Dallas, Texas—p 728
- Treatment of Cutaneous Malignant Neoplasms. G. M. MacKee, New York—p 738
- *Roentgen Treatment over Vegetative Nerve Centers or Ganglions in Diseases Presenting Symptoms of Disturbances of Vegetative Nervous System. Based on Study Extending over Period of Five Years. H. Langer, Pittsburgh—p 747
- Preconception Ovarian Radium Irradiation of Albino Rat (*Mus Norvegicus Albinus*). Biologic Study. G. S. de Renyi, Marguerite de Renyi and D. P. Murphy, Philadelphia—p 764
- Various Radiopaque Substances and Their Toxicity When Used to Visualize Reticulo Endothelial System of Laboratory Animals. J. N. Ane and L. J. Menville, New Orleans—p 784
- *Injection of Iodized Poppy Seed Oil into Knee Joint. Warning Against Its Use. M. S. Burman, I. S. Tunick and M. Pomeranz, New York—p 787
- Trachea in Nonsyphilitic Disease of Ascending Aorta and Aortic Arch. W. Chester, New York—p 796
- Urethral Calculi. W. R. Brooksher, Jr., Fort Smith, Ark—p 801
- Gallstones Confused with Colon Diverticula. H. E. Potter, Chicago—p 803
- Calcifications in Spleen. H. Rudisill, Jr., Charleston, S. C—p 805
- Diaphragmatic Hernia with Severe Anemia. M. Weitzen, New York—p 808
- Aiding Research in Radiology. R. H. Stevens, Detroit—p 813

Squamous Cell Carcinoma of Skin—Martin states that the number of cures of squamous cell carcinoma of the skin produced by efficient irradiation equal those produced by surgery

and that the cosmetic results are much better. The pessimistic attitude that exists among dermatologists is apparently due to extreme conservatism and inadequate dosage. Surgical methods are valuable adjuncts in treating tumors growing on cartilage and in neck dissections when only one or two malignant glands are present. It is the author's custom to treat all primary squamous cell skin lesions with roentgen radiation alone unless marked induration is felt beneath the tumor or the process extends well out onto a mucous membrane as, for instance, at the corner of the mouth. In such cases the treatment is supplemented with radium. Before primary lesions are treated, they are surrounded by a lead foil shield which allows a border of normal tissue about one-eighth inch wide to be exposed. A cone attached to the under side of a tube stand is then brought down so that it exerts firm pressure on the lead shield and covers the diseased area. The factors used are an 87 kilovolt 5 milliamper peak, a target skin distance of 10 inches, a filter of 0.5 mm of aluminum and exposures of five minutes. With a Victoreen ionization apparatus placed so as to take back-scattering into account, this dose amounts to 555 roentgens with an aperture of three-fourths inch in diameter, 640 roentgens with an aperture of 1½ inches, and 666 roentgens with an aperture of 2 inches.

Roentgen Treatment over Vegetative Nerve Centers

—Langer reviews the literature and states that the effect of roentgen radiation on the vegetative nervous system was proved in animal experiments with a special technic by him in 1923 and that his observations have been corroborated by others. He explains the effect of roentgen radiation on the vegetative nervous system in a form of two stages: (1) irritating, (2) quieting effect. He reports three cases of different diseases of the skin illustrating these effects. He attempts to persuade radiologists to study and cooperate with his observations. He advocates the desirability of trying roentgen treatment before surgical removal of sympathetic ganglions or trunk resection. The technic presented might prove of value as a diagnostic test as well as a help in clinical research and does not seem to show any permanent injurious effect on the patient. It consists of the application of roentgen radiation either directly to the autonomic nerve center in the diencephalon or to other autonomic centers. All the cases have been treated with short wave therapy of from 185 to 200 kilovolts, 0.5 mm of copper, 3 mm of aluminum, 35 cm skin target distance, wavelength 0.166 angstrom, and 4 milliamperes.

Injection of Iodized Poppy-Seed Oil into Knee Joint

—Burman and his associates injected iodized poppy-seed oil into the knee joints of thirteen patients. The age of the patients, six men and seven women, varied from 34 to 61. Twelve of the thirteen suffered from mild to severe arthritis of the knee over a period ranging from two months to three years. The thirteenth patient, a man, presented a bursitis under the insertion of the biceps femoris tendon and was used as a normal control joint. Only two cases showed marked bone changes roentgenographically, marked narrowing of the interarticular space with irregularity, indicating definite bony and cartilaginous destruction. In one case a sterile effusion of the knee was tapped, 40 cc of a light brown fluid, with some fibrin in it, being obtained. Most patients complained of pain in and about the knee joint, swelling of moderate degree, and crepitation on motion. Motion was usually almost normal. In three cases, extension was slightly limited to 170 degrees and flexion was definitely lessened, even up to 90 degrees. Practically all cases showed enlargement of the infrapatellar fat pad and hypertrophy of the synovial membrane. In one case a foreign body was seen in the roentgenogram with definite limitation of motion. About three hours after the injection, all the patients were seized with severe, stabbing pains in the knee joint, radiating up the thigh and down the leg. Sleep was impossible. The acute pain lasted for about twelve hours and then gradually abated, in a duller, gradually lessening form, the pain persisted from two to eleven days. With the pain, the signs of a chemical synovitis of varying degree were noted—swelling of the joint, local heat, diffuse tenderness and refusal to move the joint because of pain and stiffness. No redness was present. The chemical synovitis, apart from the severity of the pain, lasted from one to two weeks. The authors conclude that the intra-articular injection of iodized poppy-seed oil is a dangerous procedure and that it should never be used.

American Review of Tuberculosis, New York

26: 637 792 (Dec.) 1932

- Robert Koch's Discovery of Tubercle Bacillus Some of Its Implications and Results R Philip London England—p 637
- *Statistical Estimation of Value of Program for Collapse Therapy J Head Chicago O C Schlack and J Marx, Oak Forest, Ill—p 653
- Present Status of Chest Surgery in Treatment of Pulmonary Tuberculosis with Especial Reference to Thoracoplasty E H Bruns and J Casper Denver—p 665
- *Value and Limitations of Phrenicectomy in Advanced Pulmonary Tuberculosis Report on One Hundred and Eighty Three Cases I D Bronfin and M Chernyk Denver—p 689
- Bilateral Artificial Pneumothorax W C Pollock and H P Marvin Denver—p 709
- Recording of Manometric Pressures in Artificial Pneumothorax H P Bacon Minneapolis—p 727
- Pulse Rate and Blood Pressure During Artificial Pneumothorax Insufflations J Steidl and F H Heise, New York—p 730
- Emphysema of Mediastinum as Complication of Artificial Pneumothorax G E Ehrenburg Spvak, Colo—p 738
- *Superiority of Mineral Oil over Olive Oil in Oleothorax Experimental Studies I Goldenberg and S I Flanchuk, Charkow the Ukraine Translated by Dr Charles Rubenstein Los Angeles—p 754
- *Cottonseed Oil in Progressively Obliterative Artificial Pneumothorax N Bethune Montreal, Canada—p 763
- *Scaleniectomy in Treatment of Tuberculosis Preliminary Report. M Clyne Tucson Ariz—p 771
- Scaleniectomy as an Adjunct to Collapse Therapy L Fisher Waverley Hills Ky—p 776

Value of Program for Collapse Therapy—Head and his associates believe that phrenicectomy is of definite value as an independent procedure in the treatment of pulmonary tuberculosis. Its use as a primary procedure decreases the number of cases in which artificial pneumothorax is indicated. It discourages the development of extrapulmonary complications. Spread to the opposite lung, or a lighting up of arrested or quiescent processes there, is less likely to occur if the operation is performed. Active disease in the opposite lung is more likely to clear up. Phrenicectomy discourages the development of pleural adhesions and so does not interfere with the later induction of artificial pneumothorax if this should become necessary. It does not prevent collapse therapy of the opposite lung. In general, the percentage of favorable results is in proportion to the extent of involvement, the size of the cavities and the tendency to fibrosis and retraction of the lesion, but phrenicectomy frequently fails to effect cures in apparently favorable cases and often effects them in soft extensive lesions with large cavities and an absence of fibrosis. The authors wish to state that this program has been applied as an experiment and by no means expresses their conception of the proper treatment of tuberculosis. They feel that each tuberculous patient should be treated individually. Collapse therapy should be applied earlier and more frequently than it has been heretofore.

Value and Limitations of Phrenicectomy in Advanced Tuberculosis—Bronfin and Chernyk give a tabulated report of the clinical results of phrenicectomy performed on 183 patients from 1924 to September, 1931. The extent of the pulmonary involvement or complication in each individual patient for which this operation was deemed advisable is indicated by group classification. From a study of the results they conclude that phrenicectomy is chiefly applicable in the treatment of predominantly unilateral lesions with little or no cavitation when pneumothorax is impossible and a routine sanatorium regimen is not productive of beneficial results. It has a wide field of usefulness in bilateral cases which have a limited contralateral lesion without definite cavitation. In from 40 to 50 per cent the palliative effect, decrease in cough and sputum and greater ease of expectoration, is quite marked. It may be an important aid in checking hemoptysis. It frequently converts an unsatisfactory pneumothorax into an effective collapse. It exerts a favorable influence on those complications so frequently resulting from pneumothorax, notably empyema either with or without bronchial fistula. Its usefulness in chronic lesions with bilateral cavitation, associated emphysema and general debility, even when there is a major disease on one side with recent lower lobe involvement is extremely limited and it is generally contraindicated.

Superiority of Liquid Petrolatum over Olive Oil in Oleothorax—Since Bernou made his first report on oleothorax in 1922 this method of therapy has been quickly adopted in tuberculosis clinics throughout the world. In the application

of oleothorax in their clinic, Goldenberg and Flanchuk observed through experimental work the action of olive oil and liquid petrolatum, without the addition of any disinfecting substances, on the healthy pleura of rabbits. Olive oil, as well as petrolatum, after being introduced into the pleural cavity produces an inflammatory reaction. This reaction is more marked when olive oil is used. Olive oil, even after being in the pleural cavity of a rabbit for a short time, undergoes marked physicochemical changes, whereas petrolatum undergoes changes only after a longer presence in the pleural cavity. The changes that take place in olive oil, and particularly petrolatum, while in the pleural cavity, and their general influence on the organism, warrant further detailed study. According to the data obtained by their experiments, the use of liquid petrolatum is preferable to olive oil in the field of oleothorax. The entire question requires further observation in the clinic, during which the differences noted in the reactions of the pleura of the human being against those of the experimental animal should be borne in mind.

Cottonseed Oil in Pneumothorax—Bethune reports the case histories of three tuberculous patients in whom pure cottonseed oil appeared to be a useful substitute for air in progressively obliterative pneumothorax. The oil in these cases has been tolerated without local or constitutional reaction. The oil should not be used as a substitute for an ordinary pneumothorax, nor should it be placed on the diaphragm but only on the shelf formed by the adherent base of the lung. The rate of absorption of the oil will vary from 0.05 to 0.5 cc a day. The author suggests that the use of the oil be restricted to semi-permanent collapse and that it be drained after two or three years, as no case can be considered safe in which any foreign material—air, fluid or solid—is interposed between the two pleural surfaces. His technic of injection is as follows. The patient lies flat on his back. A 16 gage and an 18 gage needle are put into the pneumothorax cavity in the second interspace side by side. The pneumothorax pressures are taken, then the two needles are left open to the air. The sterile cottonseed oil is heated to body temperature in a water bath and injected with a 50 cc. Luer syringe through the 16 gage needle. After each 50 cc injection the pressure of the remaining pneumothorax is taken with the manometer. It should show a zero or slightly negative pressure. The air is allowed to escape through the 18 gage needle as the oil is injected through the other. As soon as no true pressure can be obtained by the water manometer attached to the 18 gage needle, or as soon as oil appears in this needle, no more oil is injected. Both needles are withdrawn and the punctures tightly strapped. Fluoroscopy done immediately afterward will show the oil with a small apical cap of air on top of it. This cap of air will be absorbed in a few days, leaving the oil at a negative pressure. In testing the subsequent oil pressure, the author uses a U tube of 5 or 6 mm internal diameter, filled with cottonseed oil. The scale is marked in true pressures of centimeters of oil, as on a water manometer. Owing to the specific gravity of oil being 0.9, corresponding oil pressures are nine tenths of water manometer pressures. With the patient sitting upright, a 16 gage needle is put in the lowest part of the oil pocket, and the oleomanometer, which is completely filled with oil, is connected with a short rubber tube to the needle and the pressure is read on the open limb.

Scaleniectomy in Treatment of Tuberculosis—Clyne points out that phrenic exeresis should not be depended on alone in apical lung lesions but should be combined with scaleniectomy. Scaleniectomy alone has induced a degree of immobilization in the involved apex in a series of fifty-two cases. Of twenty cases in which a phrenic exeresis had been done from six months to three years previously and improvement had stopped, ten were improved and ten not improved, of twenty-nine cases in which the combined operation was done, improvement was noted in nineteen with no improvement in ten, of three cases in which scaleniectomy was done alone because of apical involvement with complicating asthma, and because it was thought best not to embarrass respiration by paralyzing the diaphragm, two were improved definitely. Scaleniectomy is indicated in pneumothorax cases with apical activity, when the upper lung has not been collapsed. Scaleniectomy and phrenic exeresis should in most cases precede a paravertebral thoracoplasty, because the first rib is released to allow greater caudal pull or the intercostal muscles, especially in front.

Archives of Dermatology and Syphilology, Chicago
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- Overlapping of Dermatology and Internal Medicine W H Barrow, San Diego, Calif—p 961
- Microscopic Slide Precipitation Test for Diagnosis of Syphilis with Chinese Fluid Including a Comparison of Kline, Wassermann, Kahn and Hinton Blood Serum Tests in One Hundred and Ten Patients with Suspected Syphilitic Sores I Chargin, J J Eller and C R Rein, New York—p 965
- Blood Sugar Findings in More Common Diseases of Skin Report of Six Hundred Cases J F Fisher, Cleveland—p 970
- Etiology of Pityriasis Rosea L W Lord, Baltimore—p 981
- Pityriasis Icthenoides et Varioliformis Acuta Report of Case S Crawford, Pittsburgh—p 990
- *Dermatologic Conditions of Fetus, with Particular Reference to Variola and Vaccinia F W Lynch, Minneapolis—p 997
- Cutis Verticis Grata Following Trauma and Infection H E Alderson, San Francisco—p 1020
- History of Feminine Beautification C Lerner New York—p 1022
- Parakeratosis (Mibelli) Report of Case, Histologic Study and Animal Inoculation I B Ritchie, Evansville, Ind., and S W Becker, Chicago—p 1032
- Dermatomyositis P H Wheeler and M Harlin, Cleveland—p 1039
- *Bowen's Precancerous Dermatitis and Multiple Benign Superficial Epithelioma Evidence of Arsenic as an Etiologic Agent N P Anderson Los Angeles—p 1052
- *Nirvanol Eruptions J F Madden, St Paul—p 1065
- Efficacy of Bismarsen in Wassermann Fast Syphilis J L Grund, Boston—p 1074
- IXI The Financing of Dermatologic Research Suggestion for the Future W H Mook St Louis—p 1076
- *Action of Pine Oil on Some Fungi of Skin, in Vitro H F Smyth and H F Smyth, Jr Wayne, Pa—p 1079

Dermatologic Conditions of Fetus—Lynch outlines the cutaneous diseases present at birth. He believes they are due to conditions related to fetal environment, ectodermal anomalies, keratoses, keratolyses, disturbances of subcutaneous tissue, nevus, new growths or infectious diseases. He reports a case of generalized eruption in a six months fetus born twenty-seven days after vaccination of the mother. The eruption consisted of umbilicated pustules and flaccid bullae. Similar cases have been described in the past as intra-uterine variola. An accurate diagnosis could have been established only by inoculation experiments with the fluid of the lesions. The history, appearance and pathologic studies were not sufficient to distinguish between these two possibilities. The author believes his case to be one of pemphigoid vaccinia occurring in the fetus.

Bowen's Precancerous Dermatitis—Anderson reports a case of Bowen's disease presenting a history of arsenical medication, the presence of arsenic in the tissues and urine, the suggestive simultaneous occurrence of lesions that were clinically multiple benign superficial epithelioma, the presence of a cutaneous horn, the hyperkeratotic lesions on the legs, and the palmar and plantar arsenical keratoses. The author believes that one, and only one, etiologic agent can be responsible for such observations, namely, arsenic. He also reports two cases of benign superficial epithelioma, one multiple and the other single, both accompanied by arsenical keratoses of the palms and soles, in one of which arsenic was demonstrated in the lesion. He discusses the probable relationship of Bowen's disease to multiple benign epithelioma and suggests that arsenic is the etiologic agent in both conditions.

Nirvanol Eruptions—Madden points out that nirvanol, a new preparation used in the treatment of chorea, after it has been administered for a definite time in exact amounts, uniformly produces an eruption accompanied by a definite symptom complex. In chorea, successful results are attributed to the specific reaction that occurs after several days of oral administration. Most observers believe that the reaction is similar to that of serum sickness, but the exact mechanism is not known. Symptoms following ingestion of nirvanol appear with clocklike precision. They are not constant but are more consistent than is the case with most eruptions due to drugs. The histopathologic condition is the same as that found in any toxic erythema. The differential diagnosis rests between the acute contagious exanthems, measles and scarlet fever, and eruptions produced by this drug. There are fairly uniform changes in the blood in all cases. The prognosis of nirvanol sickness is good. Complications are few and usually are of no great consequence. The literature contains only a few examples of severe complications that resulted in sepsis or death.

Action of Pine Oil on Some Fungi of Skin—On the basis of their tests, the Smyths state that pine oil has definite

value as a fungicide against organisms causing such diseases of the skin as ringworm. Considering cost and effectiveness, "very pale yellow" pine oil seems to be the most practical of the materials tested, although it is not the best material for every organism tested. One advantage of pine oil over other possible materials for the treatment of ringworm lies in its low vapor pressure. It stays in contact with the infection for a long time. Two or three applications daily are adequate to maintain almost constant contact, even without poulticing. This is by no means true of all materials now on the market for the treatment of ringworm. For treatment of fungal infections in which the organism burrows under the top layers of the skin, this long continued contact with chance for penetration is a decided advantage. The odor of pine oil is pleasant and it does not stain or otherwise injure clothing, so that its use is not objectionable.

Archives of Neurology and Psychiatry, Chicago

28 1243 1478 (Dec) 1932

- Cerebral Circulation XIX Vagal Pathway of Vasodilator Impulses S Cobb and J E Finesinger, Boston—p 1243
- Cerebral Vasodilatory Nerves and Their Pathway from Medulla Oblongata Observations on Pial and Intracerebral Vascular Plexus J Chorobski and W Penfield Montreal Canada—p 1257
- *Cerebral Circulation XVIII Effect of Caffeine on Cerebral Vessels J E Finesinger, Boston—p 1290
- Encephalography Anatomical and Clinical Correlations H H Dixon, Portland, Ore., and F G Ebaugh, Denver—p 1326
- *Relation Between Myasthenia Gravis and Exophthalmic Goiter S J Cohen and F H King Brooklyn—p 1338
- Oxygen Consumption ("Basal Metabolic Rate") in Schizophrenia II Distribution in Two Hundred and Fourteen Cases R G Hoskins, with technical assistance of Anna Walsh, Boston—p 1346
- Development of Behavior Patterns and Myelination of Tracts in Nervous System O R Langworthy Baltimore—p 1365
- *Effect of Experimental Hepatic Damage on Hematoencephalic Barrier C W Eisele and L A Crandall, Jr, Chicago—p 1383
- Charles Karsner Mills Memorial Meeting of Philadelphia Neurological Society C H Frazier, W G Spiller, C W Burr, J W McConnell and W B Cadwalader, Philadelphia—p 1390

Cerebral Circulation—Finesinger describes experiments in which he demonstrated that during amytal anesthesia the intravenous administration of caffeine sodiobenzoate to cats caused a dilatation of the pial artery, a rise in cerebrospinal fluid pressure and an abrupt drop in blood pressure with immediate return to normal. Local administration of caffeine solution to the pia caused a dilatation of the pial artery and in most cases no change in cerebrospinal fluid pressure or blood pressure. During ether anesthesia the intravenous administration of caffeine caused a constriction of the pial artery from its initial diameter, a drop in cerebrospinal fluid pressure and an abrupt drop in blood pressure with return to normal. After local administration, during ether anesthesia, caffeine had no effect on the pial artery and in most cases caused no change in the cerebrospinal fluid pressure and blood pressure. After recovery from ether anesthesia, when the superficial reflexes were present, the intravenous administration of caffeine caused an acute constriction of the pial artery followed in most cases by an immediate dilatation. In most cases the cerebrospinal fluid pressure dropped and then rose immediately. The blood pressure dropped abruptly and then immediately rose to its normal level, and in most cases exceeded its preliminary level. During amytal anesthesia and after recovery from ether anesthesia there was evidence of dilatation of the measurable arteries, arterioles and venules. Changes in velocity and color were observed, which indicate that the caffeine caused a dilatation of the capillaries as well. The results presented by the author are in keeping with the results of most investigators studying the vascular response to caffeine in other parts of the body. This would suggest that the vessels of the pia respond to caffeine in the same way as do the vessels elsewhere in the body.

Myasthenia Gravis and Exophthalmic Goiter—Cohen and King report a case of exophthalmic goiter with myasthenia gravis. They also review the heretofore reported cases of exophthalmic goiter with myasthenia gravis. The cases of the combination of myasthenia gravis with exophthalmic goiter do not exhibit lesions of the brain or of the spinal cord. There is a similarity in the pathology, pathogenesis and endocrine dysfunction in exophthalmic goiter and myasthenia gravis. The authors call attention to the beneficial effect of ephedrine sulphate in myasthenia gravis alone, as well as when it is complicated by exophthalmic goiter.

Experimental Hepatic Damage —Eisele and Crandall studied the hemato-encephalic barrier in thirty-seven normal dogs, eight dogs with Eck fistulas and two with complete obstructive jaundice. The methods used were the appearance of dyes in the cerebrospinal fluid, Walter's bromide method and the inorganic phosphorus of the fluid. No evidence of a change in barrier function in the presence of liver damage was found. The permeability quotient for bromide is higher and more variable in normal dogs than in normal men. Varying the duration of bromide feeding from two to ten days did not have any apparent effect on the quotient.

Arch of Physical Therapy, X-Ray, Radium, Chicago 13 710-794 (Dec.) 1932

- Therapeutic Applications of High Frequency Currents d'Arsonval
Nogent sur Marne France —p 715
Professor d'Arsonval G Bourguignon Paris, France —p 717
D'Arsonvalization Its Principal Applications L Delherm and M
Kahn Paris France —p 727
D'Arsonval and His Work. H Bordier, Lyons France —p 734
High Frequency and Blood Pressure. A Laqueur, Berlin, Germany
—p 740
The Landmarks of Electrotherapy W J Turrell, Oxford England
—p 744
Present Status of Electroparalysis C A Neymann, S M Feinberg
D E Markson and S L Osborne Chicago —p 749
High Lights in Electrosurgery H A Kelly Baltimore —p 768
Treatment of Malignant Growths of Oral Cavity W L Clark, Phila
delphia —p 771
Further Considerations of Diathermy in Malignancy G Kolischer,
Chicago —p 780
Diathermy in Gynecology E P Cumberbatch, London England
—p 782
D'Arsonvalization in Hyperpnea F H Humphris London England
—p 786
Electrosurgical Tonsillectomy Its Scientific Status in Laryngology
A R Hollender Chicago —p 789

Delaware State Medical Journal, Wilmington

4 265 288 (Dec.) 1932

- Asiatic Cholera in Wilmington 1832 W P Frank, Wilmington
—p 265
Social Insurance. E. H. Ochsner Chicago —p 277

Iowa State Medical Society Journal, Des Moines

22: 563 624 (Dec.) 1932

- *Value of Electrocardiograph in Differential Diagnosis of Heart Disease
L E. Cooley Dubuque —p 563
Problem of Mental Defectiveness in Iowa A H Woods Iowa City
—p 569
Clinical Neurology and General Practitioner T B Throckmorton
Des Moines —p 574
Indications for Sympathectomy in Angina Pectoris W D Abbott
Des Moines —p 581
Psychoses Associated with Pregnancy R E Crowder Sioux City
—p 583
Present Status of Treatment of Syphilis in Adults. C C Colletter
Spencer —p 585
Severe and Neglected Syphilis Case Mary H Swan Chicago —p 592

Electrocardiograph in Differential Diagnosis of Heart Disease—Cooley points out that a normal electrocardiogram does not necessarily mean a normal heart. Myocardial involvement may be interpreted as myocardial damage only in conjunction with the clinical picture. The amount of myocardial involvement may not correspond to what is seen in the electrocardiogram. One cannot determine whether the involvement is acute or chronic from the electrocardiogram. Physiologic changes can easily be confused with minor changes in the QRS and T waves. Digitalis can produce changes in the QRS and especially in the T wave which can be mistaken for myocardial involvement. It is not possible to make a diagnosis of valvular disease from the electrocardiogram. Like all other mechanical means in medicine, it is only an aid in making the diagnosis. Nevertheless, it is invaluable in many cases. There is a decided practical advantage in differentiating the irregularities of the heart. The prognosis of extrasystoles as a rule is much better than that of auricular fibrillation. Extrasystoles from one focus are less dangerous than those from several foci. Auricular fibrillation is a serious heart condition, while sinus arrhythmia is a physiologic variation. To give digitalis or quinidine to a patient with partial heart block is dangerous, but it is good treatment in auricular fibrillation. The simple tachycardias have a better outlook than the paroxysmal tachycardias. Quinidine is not indicated in the simple tachycardias but it may be in the paroxysmal tachycardias.

The outlook in a sinus bradycardia is obviously much better than in partial or complete heart block. An electrocardiogram may be of value after thyroidectomy in differentiating hyperthyroidism from myxedema. Finally, in the treatment of heart cases the electrocardiogram is essential. It is a valuable aid in digitalization. The appearance of an inverted T wave, extrasystoles or a partial heart block indicates that a digitalis effect is being obtained. The electrocardiogram also serves as a guide in preventing overdosage of such drugs as digitalis and quinidine.

Journal of Comparative Neurology, Philadelphia

58 257 512 (Dec. 15) 1932

- Diencephalic Course and Termination of Medial Lemniscus and
Brachium Conjunctivum S W Ranson and W R Ingram Chicago
—p 257
Spinal Cord Regeneration in Young Rainbow Fish, *Lebistes Reticulatus*
D Hooker Pittsburgh —p 277
Cerebellum of Reptiles Chelonians and Alligator O Larsell, Port
land Ore —p 299
Electrodynamic Theory of Development Suggested by Studies of Pro-
liferation Rates in Brain of Amblystoma H S Burr Boston —p 347
Experiments on Motor Cortex of Cat P S McKibben and D R
Wheeler San Francisco —p 373
Spongiosoblastomas of Brain P Bailey, Chicago and Louise Eisenhardt,
Boston —p 391
*Law of Cephalocaudal Differential Growth in Its Application to
Nervous System B F Kingsbury Ithaca N Y —p 431
Further Experiments on Accelerated Growth in Heteroplastic Spinal
Cord Grafts S R Detwiler, New York —p 465
Biologic Theories of Gottfried Reinhold Treviranus (1776 1837)
R Mourgue Mulhouse France —p 503

Journal of Immunology, Baltimore

23 423 497 (Dec.) 1932

- Hypothetic Mechanism of Antibody Formation S Mudd Philadelphia
—p 423
Phenomenon of Local Skin Reactivity to Pneumococcus G Schwartz
man New York —p 429
Quantitative Study of Precipitin Reaction with Especial Reference to
Crystalline Egg Albumin and Its Antibody J T Culbertson New
York —p 439
*Specific Reaction of Convalescent Serum on Streptococcus Isolated in
Studies of Poliomyelitis E C Rosenow Rochester Minn —p 455
Quantitative Aspect of Hypothetic Incorporation of Injected Antigen in
Resulting Antibody II Experimental S B Hooker and W C
Boyd Boston —p 465
Further Studies on Meningococcus with Especial Reference to Shwartz
man Reaction H W Powell and W A Jameson, Indianapolis
—p 481

Specific Reaction of Convalescent Serum on Streptococcus Isolated in Poliomyelitis—Rosenow found, by studying the effect of convalescent serum on the streptococcus having characteristic cataphoretic velocity as isolated in cases of poliomyelitis, a marked and specific slowing or charge-reducing effect. This action of the serum increases during recovery from poliomyelitis and is at its maximum during the fourth week after onset of the acute attack, after which there is gradual diminution, but it remains readily demonstrable even twenty years after recovery. The results indicate that the streptococcus isolated by him so consistently in poliomyelitis is not a contamination or postmortem invader.

Journal of Lab and Clinical Medicine, St. Louis

18 219 328 (Dec.) 1932

- Classification of Allergic Diseases with Reference to Diagnosis and
Treatment. A F Coca Pearl River N Y —p 219
A V Dissociation E B Zeisler Chicago —p 225
Control of Pollen Allergy W T Vaughan Richmond, Va. —p 240
*Observations on Accuracy of Rabbit Ovulation Test for Pregnancy
H H Ware Jr and R J Main Richmond, Va. —p 254
*Sedimentation Rates of Erythrocytes in General Disease D M
Vickers and Ruth Duryce Cambridge N Y —p 260
Studies in Venous Pressure L B Owens Cincinnati —p 266
Specific Gravity of Blood During Spinal Anesthesia. T Bender and
D Polowe Paterson N J —p 275
Etiologic Studies in Hodgkin's Disease H L Stewart Philadelphia
—p 281
*Effects Observed Following Intravenous and Subcutaneous Administra-
tion of Fluid Experimental Study on Dogs J R Miller and C A
Pondexter Chicago —p 287

Rabbit Ovulation Test for Pregnancy—Ware and Main tested 150 patients for suspected pregnancy with the rabbit ovulation test and later established the diagnosis clinically in 100 of these. This test has proved to be accurate with but one possible exception. The number of cases now reported in the literature is over 1000, with an accuracy of over 99 per cent. The authors found the rabbit ovulation test to be of particular

advantage in the diagnosis of hydatidiform mole, missed abortion, ectopic pregnancies, uterine fibroids, the menopause and tubo-ovarian abscesses. The earliest pregnancy giving a positive result was six days after the menstrual period was due. Following delivery, a negative result was obtained in from twenty-four to seventy-two hours.

Sedimentation Rates of Erythrocytes—Vickers and Duryee state that the test for determining the red cell sedimentation rate is easily performed and that the results are easily read. Normal persons have a sedimentation time (Linzmeier method) of over two hours. Severe acute and chronic inflammatory conditions greatly lower this time. The authors employed the test in 348 patients suffering from numerous complaints. They conclude that it is of diagnostic and prognostic value in rheumatic fever, atrophic arthritis and osteoarthritis and in differentiating mild degrees of these conditions from functional disturbances symptomatically similar. The test is also of value in separating inflammatory from noninflammatory conditions of the urinary tract and is of considerable confirmatory evidence in many other conditions.

Intravenous and Subcutaneous Administration of Fluid—Miller and Ponder observed that no harmful results were demonstrated when large quantities of a 0.9 per cent solution of sodium chloride were given, either subcutaneously or intravenously, to normal or pathologic animals. Electrocardiograms did not show any characteristic changes when large quantities of fluids were given intravenously either in normal animals or in those presumably suffering from myocardial damage. Isotonic saline solution, when injected subcutaneously, decreased the amplitude of the R wave in the electrocardiogram. In normal animals, exsanguination and perfusion gave blood volumes that corresponded closely to those given by the dye method. There was an increased concentration of the blood in animals suffering from the effect of diphtheria toxin. The blood volumes, as determined by the dye method, showed no increase after the intravenous injection of large amounts of fluid. This did not agree with the amount indicated by the dilution of the blood, as shown by repeated determinations of the erythrocytes, hemoglobin, serum proteins and plasma increase. No index was found that might be used as a warning against excessive hydration of the tissues. The authors believe that the hematocrit is the most simple test for blood dilution following the administration of fluids postoperatively. Its use would be limited, obviously, to cases not manifesting hemorrhage or evidence of rapid hemolysis.

Journal of Pharmacology & Exper Therap, Baltimore

46 375-492 (Dec.) 1932

- Pharmacologic Action of Eseridine. R St A Heathcote, Cairo, Egypt —p 375
- *Concerning Relative Preanesthetic Values of Sodium Salts of Isoamyl ethylbarbituric Acid (Amytal), Pentobarbital, Phenobarbital and Barbitol. E E Swanson, Indianapolis —p 387
- Studies on Synergism and Antagonism of Drugs. I Nonparasympathetic Antagonism Between Atropine and Miotic Alkaloids. T Koppányi, Washington, D C —p 395
- Vagus Control of Pancreatic Function. Experimental Insulin Resistance. E B Boldyreff and Jean F Stewart, Battle Creek, Mich —p 407
- *Study of Gastric Secretion Caused by Insulin. E B Boldyreff and Jean F Stewart, Battle Creek, Mich —p 419
- *Use of Basic Sodium Phosphate as Antidote for Hypercalcemia in Dogs. Irving H Page and J P Scott, Indianapolis —p 431
- Response of Isolated Intestine to Cocaine and Novocain at Different pH Levels. W Salant and W M Parkins, Cold Spring Harbor, N Y —p 435
- Cardiovascular and Metabolic Reactions of Man to Intramuscular Injection of Posterior Pituitary Liquid (Pituitrin), Pitressin and Pitocin. A Grollman and E M K Geiling, Baltimore —p 447
- Action of Various Uric Acid Eliminants on Experimental Uric Acid Storage in Kidney. H O Schroeder, Montreal, Canada —p 461
- Method for Studying Variations in Coronary Inflow During Series of Cardiac Cycles, or for Determining Inflow Rates Generally. R L Stehle, Montreal, Canada —p 471
- Influence of Heart Beat on Flow of Blood into Coronary Arteries. R L Stehle and K I McVillie, Montreal, Canada —p 477

Barbituric Acid Derivatives—By different methods of comparison, Swanson found that sodium amytal and sodium pentobarbital have practically the same premedication value. Sodium phenobarbital and sodium barbitol possess a comparatively lower hypnotic efficiency. The author emphasizes that the toxicity of these compounds should be accurately determined before any comparisons are made with the methods employed.

Gastric Secretion Caused by Insulin—Boldyreff and Stewart report that both commercial and crystalline preparations of insulin have a definite secretagogue action on gastric glands. The latent period depends on the mode of administration: ten minutes or less for intravenous and about forty minutes for subcutaneous injection. The duration of secretion depends on the dosage, lasting from one to six hours (2 to 8 units of insulin). The stimulating action is monophasic and is not preceded by a period of inhibition of gastric secretion. Small dosages are found to be effective (2 units). Gastric juice secreted in response to insulin has a high acidity, free and total, and high pepsin content. The acidity, determined electrometrically, may attain a pH of 1.0 or even slightly less. It is not improbable that the polypeptide nature of insulin is responsible for its action on the stomach. Gastric secretion caused by this drug, unlike that produced by histamine, is suppressed by the administration of atropine. It is therefore apparent that the secretagogue action of insulin is due to vagus stimulation of the stomach. Intravenous administration of dextrose does not suppress gastric secretion produced by insulin. The beginning of gastric secretion precedes the advent of hypoglycemia. The greatest diminution in the amount of blood sugar occurs a considerable time after the onset of secretion.

Basic Sodium Phosphate as Antidote in Hypercalcemia—Page and Scott describe experiments in which they noted that basic sodium phosphate intravenously injected into normal dogs and dogs in which the calcium has been raised by parathyroid extract lowered the serum calcium. Though by no means ideal, this salt is a fairly effective antidote for hyperparathyroidism.

Missouri State Medical Assn Journal, St. Louis

20 551-608 (Dec.) 1932

- *Hunger Osteomalacia. Report of Case—Recovery. C H Eyermann, St. Louis —p 551
- Clinical Manifestations of Diseases of Breast. J N Jackson, Kansas City —p 555
- Röntgen Ray Examination of Breast. I H Lockwood and W Stewart, Kansas City —p 557
- *Respiratory Diseases that Mimic Appendicitis. Their Importance to Surgeon. P S Lowenstein, St. Louis —p 563
- Prognosis and Treatment of Syphilitic Aortitis. W S Middleton, Madison Wis —p 567
- Syphilis of Nervous System. S I Schwab, St. Louis —p 574
- Syphilis of Osseous System. A O'Reilly, St. Louis —p 577
- Effect of Malarial Therapy on the Congenital Syphilitic. C C Dennis, Kansas City —p 581
- Presence of Syphilis in Compensation Claims as Viewed by Missouri Workmen's Compensation Commission. J J James, Kansas City —p 585
- Presence of Syphilis in Compensation Cases from Standpoint of Physician. P F Stookey, Kansas City —p 587

Hunger Osteomalacia—Eyermann says that during the year 1918 there occurred in Austria and Germany an affliction characterized by pain in the bones which was usually interpreted as rheumatism. The pains were most frequently present in the ribs, back and lower extremities. With progression of the affliction there ensued difficulty in climbing stairs, a characteristic waddling gait and loss of stature. Eventually the sufferers became bedfast, being able to move only with assistance and then with great pain. Deformity as a rule was confined to kyphoscoliosis of the spine, but spontaneous fractures were not infrequent. The bones of the pelvis were seldom involved. The disease occurred chiefly among the poorest classes. The diets of these patients consisted mainly of vegetables and bread with small amounts of flour and sugar. Milk, butter, eggs and meat were unobtainable and a small amount of lard was the only fat. It occurred especially in people past middle age (from 40 to 70) and had nearly an equal distribution between the sexes. There was a greater incidence of cases during the winter. The author reports the case of a man, aged 59, confined to bed for one year because of bone pains, and coinciding in all particulars with the symptom complex of hunger osteomalacia, who recovered completely on a high calcium and phosphorus intake combined with cod liver oil and direct exposure to sunlight.

Respiratory Diseases that Mimic Appendicitis—Lowenstein believes that emphasis should be placed on the tendency of infections of the upper respiratory tract to cause symptoms closely mimicking acute appendicitis, and, while at times there seems to be a causal sequence between inflammation in the

nasopharynx and the appendix, in many instances microscopic study of the latter proves the condition to be merely a lymphoid hyperplasia. The keynote of the whole subject is to place more dependence on the physical signs as evolved from a careful examination of the patient, and less on the variable and often evanescent symptoms.

New England Journal of Medicine, Boston

207:963 1012 (Dec 1) 1932

- Experiences with Encephalography C D Branch Cleveland E C Cutler and R Zollinger Boston—p 963
Economics of Massachusetts Cancer Program G H Bigelow and H L Lombard Boston—p 972
Chronic Progressive Chorea Huntington's Disease S Stone Concord, N H—p 974
First Sclerian Medical School in New England, at Worcester (1846 1859) and Its Relation to Thomsonianism F C Waite, Cleveland—p 984

207:1013 1068 (Dec 8) 1932

- *Carcinoma of Esophagus Analysis of Sixty One Cases L R Gaetan, Madrid Spain and E S Emery Jr, Boston—p 1013
Studies in Fat Metabolism V Observations in Lipids and Phosphorus Compounds of Human Bile C W McClure, Mildred E Huntsinger and Alison T Fernald, Boston—p 1015
Paroxysmal Hemoglobinuria Report of Cases with Familial Findings F P McCarthy and R Wilson Jr Rochester Minn—p 1019

Carcinoma of Esophagus—Gaetan and Emery present an analysis of sixty-one cases of carcinoma of the esophagus, in all of which the disease was advanced by the time a diagnosis was made. No symptoms were found that could be recognized as early manifestations of the disease, although dysphagia was the first symptom in twenty-five patients and pain in twenty-two. The authors believe that, since these symptoms are not characteristic, one should use both roentgen examination and the esophagoscope if one hopes to make an early diagnosis. In the later stages a typical history of gradually increasing obstruction may develop, but this was present in only 58 per cent of the patients. A typical history is so diagnostic that it is usually safe to make a tentative diagnosis of carcinoma even though it is not confirmed by roentgen examination or the esophagoscope.

Pennsylvania Medical Journal, Harrisburg

36:157 230 (Dec.) 1932

- Changing Concepts in Treatment of Peptic Ulcer F H Lahey, Boston—p 157
Irradiated Substances in Treatment of Skin Diseases J B Ludy, Philadelphia, and C M DeValin Washington D C—p 165
Problem of Cardiac Child In the Clinic, the School and the Home. V T Curtin Philadelphia—p 168
Value of Internal Urinary Antiseptics M Trumper Philadelphia—p 171
Serum Treatment of Gas Gangrene Report of Ten Cases W E Burnett Philadelphia—p 174
Symposium on Surgery of Colon Operative Treatment of Diseases of Colon. M Behrend Philadelphia—p 177
*Id. Symptoms and Diagnosis of Carcinoma of Colon New Method for Extirpating Rectosigmoid W W Babcock Philadelphia—p 180
Barraquer Clinic in Barcelona Spain W J Harrison, Philadelphia—p 186
Medicolegal Aspects of Drunkenness H A Heise and B Halporn, Uniontown—p 190

Carcinoma of Colon—Babcock states that cancer of the colon, properly handled, gives a better prognosis than cancer of any other part of the gastro-intestinal tract. By eliminating abdominal colostomy, inversion of the rectum, stage operations, and retention of segments of the distal bowel and of the artificial peritoneal diaphragm formed at the brim of the pelvis, he has greatly reduced the dangers of peritoneal infection and intestinal obstruction. In the author's method, the bowel is not entered or sutured until the abdomen has been closed and an occlusive dressing applied to all wounds. In operating he pays attention to the distribution of lymphatics in the rectum and sigmoid as emphasized by Miles. He opens the abdomen through a vertical left rectus incision. After carefully examining the liver, the aortic lymph nodes and the peritoneum for possible metastasis, he divides the left leaf of the mesosigmoid and separates the attached fat and lymphatics from the underlying structures to the midline. On the right side, he divides the peritoneum along the brim of the pelvis, locates and divides the inferior mesenteric or the superior hemorrhoidal vessels between ligatures and, if necessary, ligates and divides one or more of the sigmoid vessels. He then carries the incision along the anterior margin of the pelvis posterior to the bladder, divid-

ing the peritoneum well distant from the diseased intestine and the sigmoid, and separating rectum with fat lymphatics to the floor of the pelvis. This leaves the iliac vessels, ureters and spermatic vessels exposed. He ties a tape of folded iodoform gauze about 2 inches wide and 2 yards long at least 4 inches above the tumor. He carries the ends of the tape back of the rectum to the floor of the pelvis, against which they are firmly packed. The tumor and liberated intestine are laid on the gauze and the abdomen is immediately closed without drainage. He then places the patient in the lithotomy position, closes the rectum by a strong purse string suture, and makes an incision through the pelvic floor in the midline from near the posterior margin of the anus to the left side of the coccyx. Through this incision, the mass of gauze packing is located. He introduces a gauze drain into the pelvis to the right of the withdrawn intestine and, with the protection of a gauze dressing over the perineal wound, cuts the loop of diseased intestine away and ties a large rectal tube into the proximal end. He then introduces a retention catheter and returns the patient to bed. At a later stage, an anastomotic operation to unite the sigmoid to the lower end of the anal ring may be attempted or in some patients the proximal end of the sigmoid may be pulled through the dilated and split anus at the completion of the first stage of the operation. He has also used this operation for diverticulitis to avoid the dangers of an intra-abdominal or stage anastomosis. For comfort the patient should see that the lower intestine is completely emptied every twenty-four or forty-eight hours. He concludes that in about thirty cases this operation gave a mortality of about 10 per cent, which may be reduced to 3 per cent if deaths not directly due to the operation are eliminated.

Psychoanalytic Quarterly, Albany, N Y

1 375 772 (Oct.) 1932

- Bioanalysis of the Epileptic Reaction A Kardiner, New York—p 375
Female Homosexuality Helene Deutsch, Vienna, Austria—p 484
Ego Feeling in Dreams P Federn Vienna, Austria—p 511
Note on Theory of Libidinal Types D Feigenbaum, New York—p 543
Outline of Clinical Psychoanalysis O Fenichel, Berlin, Germany—p 545
Maurice Bedel's 'Jerome'—A Study of Contrasting Types J C Flugel London England—p 653
The Paths of Natural Science in the Light of Psychoanalysis S Rado, New York—p 683
Causality and Psychoanalysis A Letter to Editors of the Psychoanalytic Quarterly M Reiner Easton Pa—p 701
An Autobiographic Critique F Dell, Croton-on Hudson N Y—p 715

South Carolina Medical Assn. Journal, Greenville

28:291 326 (Dec) 1932

- Friedman Test for Pregnancy F B Johnson and Eleanor W Townsend Charleston—p 296
Malignancies of Large Bowel G T Tyler, Jr Greenville—p 300
Rivanol Lactate as Satisfactory Treatment in Puerperal Septicemia B J Workman Woodruff—p 304
Cytologic Basis for Certain Functional States W deB MacNider, Chapel Hill N C—p 306

Texas State Journal of Medicine, Fort Worth

28 509 582 (Dec) 1932

- Diagnosis and Treatment of Carcinoma of Colon with Especial Reference to Method of Perineal Colostomy W W Babcock Philadelphia—p 515
Referred Abdominal Pain T H Thomason Fort Worth—p 519
Adenoma of Islet Cells of Pancreas with Hyperinsulinism Hypoglycemia Operation and Recovery J S Tomlins Dallas—p 523
Consideration of Low Basal Metabolic Rate in So Called Spastic Colitis M D Levy Houston—p 526
Painful Breasts A Gynecologic Problem E W Bertner Houston—p 528
Complete Anesthesia in Obstetrics with Use of Quinine Intravenously Grace Humphreys Hood Fort Worth—p 531
Cistern Puncture in Diagnosis and Treatment of Syphilis E C Fox Dallas—p 534
Tumors of Ovary H R Dudgeon Waco—p 536
Obstruction of Lower End of Esophagus R P O'Bannon Fort Worth—p 539
Infant Feeding with Especial Reference to Some of Its Problems During First Year L von Meysenbug New Orleans—p 543
Use of Glucose Solutions in Treatment of Infants and Children D Greer Houston—p 548
Medical and Surgical Treatment of Squint J H Burleson and J B Moore San Antonio—p 550
Treatment of Sinus Diseases in Adults General Considerations R E Parrish San Antonio—p 553
Needed Public Health Legislation J W E H Beck De Kalb—p 557
The Inadequacy of Medical Socialism W F Starley Galveston—p 559

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Anaesthesia, Manchester

10 146 (Oct) 1932

- Choice of Anesthetic for Abdominal Surgery H Finsler—p 3
Notes of Anesthesia in Thoracic Surgery J R Mackenzie—p 19
*Three Hundred Cases of Routine Spinal Anesthesia G A B Walters—p 25
*Comments on Use of Percaine as Spinal Anesthetic L F Johnson—p 35

Routine Spinal Anesthesia—In using spinal anesthesia, Walters gives morphine hypodermically half an hour before the time of the operation. He places the patient in the left lateral position. He selects the space between the second and third lumbar vertebrae and injects a solution of ephedrine and procaine hydrochloride at the chosen site, infiltrating the path of the needle down to the theca. The ephedrine combats the fall in blood pressure and the procaine renders the actual puncture practically painless. From his observations in 300 cases of routine spinal anesthesia he draws attention to the following points: 1 No serious disadvantage was found in using spinal anesthesia as a routine in the 300 cases. 2 The anesthetic can be repeated without danger. 3 A smaller dose should be given to patients suffering from toxic absorption. 4 In emergency operations on patients not specially prepared, there is less vomiting than after general anesthesia. 5 By the simple method described, a comparatively short duration of anesthesia can be obtained, which makes possible the adoption of the Fowler position soon after the patient is in the ward. 6 The remarkable diminution of postoperative shock after spinal anesthesia has long been recognized, but the well being of the patients, and the air of peace in a surgical ward on "list" days, following the use of this anesthetic as a routine, have yet to be fully appreciated. 7 Spinal anesthesia does not prove an effectual preventive against such postoperative complications as pneumonia and paralytic ileus.

Nupercaine as Spinal Anesthetic—Johnson has administered nupercaine as a spinal anesthetic for the past twelve months, employing the method originated by Jones and described by him. The advantages he claims for it are: (1) the complete degree of anesthesia obtained, (2) the admirable muscular relaxation obtained, (3) the avoidance of primary surgical shock, due presumably to the blocking of afferent impulses at the spinal nerve roots, (4) the slight and transient fall in blood pressure that follows its administration, (5) the absence of untoward after-effects. In his series of sixty patients, only two have suffered from spinal headache. The occurrence of these headaches seems to be minimized by the use of a small bore (11 mm) spinal needle, thereby reducing the liability of subsequent leakage of the cerebrospinal fluid through the hole pierced in the spinal theca. No patient in the series suffered from any form of subsequent paralysis. He concludes that spinal nupercaine appears to be particularly indicated in operations below the diaphragm when some general complication such as lung trouble or diabetes exists, or when the operation may be expected to be lengthy or productive of considerable shock.

British Journal of Radiology, London

5 865 928 (Dec) 1932

- Influence of Muscular Work on Movements of Stomach Part II Experiments on Man T W Adams, D J Clarke, J M Lees, M S Pembrey and R S Vine—p 869
Output of Various Types of X Ray Machines and the Influence of Wave Form on Quality of Roentgen Radiation C E Eddy—p 892
Ancient History J R Riddell—p 903

British Journal of Tuberculosis, London

27 150 (Jan) 1933

- Preventive Vaccination Against Tuberculosis with BCG, as Practiced by Doctors in Their Own Families A Calmette—p 1
Some Observations on Venous Puncture in Pulmonary Tuberculosis H Roche—p 7
Cavitation in Pulmonary Tuberculosis R C Wingfield—p 10
Causal Factors in Development of Pulmonary Tuberculosis J Watt—p 13
Blood Pressure in Tuberculosis J Johnstone—p 16
Work of Tuberculosis Care Committees Margaret Talbot Kelly—p 19
Impression of Eighteenth Annual Conference of National Association for Prevention of Tuberculosis Mary F Nannetti—p 22

Indian Medical Gazette, Calcutta

67 601 660 (Nov) 1932

- Influence of Diet on Pregnancy and Early Infant Mortality in India Margaret I Balfour and S K Talpade—p 601
*New Conception in Treatment of Puerperal Sepsis Interim Report on Value of Vitamin A A L Mudaliar and C K Menon—p 606
Inversion of Uterus Report of Eight Cases with Comments on Treatment K Das—p 609
*Hexylresorcinol as an Anthelmintic P A Maplestone and A K Mukerji—p 610
*Sulphur Treatment in Mental Diseases Experimental Study of One Hundred Cases J E Dhunibhoy—p 612
Treatment and Prophylaxis of Dracontiasis V N Moorthy—p 617
New Vegetable Culture Medium Made from Papain Digest of Mung Dal (Phaseolus Mungo), Green Variety H W Acton, C L Pasricha, A C Roy and S M das Gupta—p 619
Constants of Pure Buffalo Ghee B B Brahmachari—p 623

67 661 720 (Dec) 1932

- Diagnosis and Treatment of Noncongestive Glaucoma E W O'G Kiriwan—p 661
Treatment of Bacillary Dysentery by Bacteriophage F H McCay—p 666
The Testing of Anthelmintics P A Maplestone—p 673
Dengue Fever in the Rangoon Mingaladon Area M Jafar and B Singh—p 674
Role of Serology in Rabies S D S Greval—p 676

Puerperal Sepsis—This being a preliminary report, Mudaliar and Menon do not propose to make any definite statements as to the efficacy of vitamin A therapy in puerperal sepsis. Their experience encourages them in the hope that this type of treatment may be carried on with increasing success. They have observed that the administration of super-D cod liver oil as a prophylactic during pregnancy is exceedingly useful in cases in which a difficult labor may be anticipated. They have given super-D cod liver oil as a prophylactic after labor in cases in which septic complications were likely to arise and it has yielded uniformly good results. The administration of cod liver oil in certain prolonged fevers of the puerperium associated with signs of sepsis has tended to bring down the temperature in a short time. They believe that the morbidity rate and range will be considerably lessened by the use of vitamin A. Of the twenty-five patients in whom this treatment was adopted, and little or nothing else done, their results have been quite satisfactory in twenty-four.

Hexylresorcinol as an Anthelmintic—In their series of cases, Maplestone and Mukerji followed the recommendations of Lamson and his co-workers regarding regulation of diet, and gave doses of 1 Gm of hexylresorcinol in hard gelatin capsules. They treated twenty-one cases of ascariasis with a cure rate of 66⅔ per cent, and an egg reduction, estimated by the original Stoll counting method, of 94 per cent. They treated twenty-six cases of hookworm infestation with 77 per cent of cures, and 71.4 per cent of egg reduction. In the present instance, as on former occasions, they relied on the examination of the stools by Lane's centrifuge method at least ten days after treatment in testing for complete cure, and, while using the egg-counting method as well, they consider their results by Lane's technique the more valuable of the two. In treating ten cases of Taenia saginata infestation they used the same dose and the same method of administration as in the case of roundworm infestation. In no case did they recover the complete worm, but five of the patients reported that they have been free from passing segments for over three months, four have not been cured, and one could not be traced. These results are not nearly as satisfactory as those reported with carbon tetrachloride by Maplestone and Mukerji. It should also be noted that, although the greater part of a tapeworm was usually evacuated a few hours after treatment with hexylresorcinol, the worms were always alive and moved actively when placed in water.

Sulphur Treatment in Mental Diseases—In treating 100 patients suffering from various mental diseases, Dhunibhoy used the technique of sulphur injection originally recommended by Schroeder, viz, injection of the solution suprapariosteally on the lateral side of the femur, preferably between the upper and the middle third. The next best sites are the gluteal regions and the outer sides of the arms when the thighs are contraindicated by any disease condition. From the results he obtained, he states that there can be no doubt that injections of sulphur in olive oil invariably produce a degree of pyrexia, the temperatures ranging from 100.2 F to 105 F and the average being 102.1 F, and that the temperatures cannot be

regulated by the doses. Pain at the site of injection in every case was unavoidable but certainly bearable. Sulphur injections should be given unhesitatingly, because unlike malaria therapy they are perfectly safe and can be given to young and old alike. Earlier cases respond better to treatment than the old chronic cases, and the earlier the treatment is instituted the greater is the chance of recovery. The author concludes that sulphur merits a trial in all early cases of psychoneurosis and psychosis and seems definitely useful in chronic psychotic patients who have heretofore failed to respond to other methods of treatment. It also appears to be useful in cases of benign and secondary stupors. Of his 100 patients, 39 improved and 13 recovered completely.

Journal of Tropical Medicine and Hygiene, London

38 116 (Jan 2) 1933

- Intensive Antimonial Treatment of Kala Azar. II. Urea Stibamine. U. Brabmachari, A. R. Majumder and R. B. De.—p. 1
Report on Blindness in Wa and Tumu Districts Gold Coast West Africa. G. Saunders.—p. 5
Presence of Microfilaria in Ascitic Serofibrinous Effusion of Patient Infested with Wuchereria Bancrofti. Preliminary Report. H. P. Froese.—p. 6

Lancet, London

2 1369 1416 (Dec. 24) 1932

- Harelip Operations for Correction of Secondary Deformities. H. Gillies and T. P. Kilner.—p. 1369
*Congenital Heart Block. Janet K. Aitken.—p. 1375
*Incidence of Albumin and Sugar in Urine of Normal Women. G. W. Theobald.—p. 1380

Congenital Heart Block—Aitken tabulates the thirty-seven cases of congenital heart block reported in the literature and reports two personally observed cases. The author states that the diagnosis of congenital heart block depends on graphic observations with a history of a slow pulse from an early age, or the absence of a history of any infection that might cause the condition after birth. A large proportion of the cases present other congenital heart abnormalities, the gross pathologic symptoms being associated with these other lesions rather than with the heart block. In three of the reported cases in which there was no other congenital cardiac abnormality the patients were healthy well grown people whose response to exercise was good. The cause of the condition is probably excessive formation of the fibrous tissue which normally develops between the auricle and ventricle, leaving the auriculo-ventricular bundle as the sole muscular connection between the chambers. The excess of fibrous development interferes with the continuity of the bundle. According to Lewis, there are three chief ways in which heart block may be caused: (1) by directly interfering with the conducting tracts, that is to say, the auriculoventricular node, the bundle or both branches of the latter, (2) by stimulating the vagus, or (3) by introducing toxic bodies into the blood stream. In the case of congenital heart block, the second and third causes can probably be put aside. Even if one could imagine vagal stimulation occurring in utero, the effect is usually transient and would not account for the long standing block noted in most of the congenital cases.

Incidence of Albumin and Sugar in Urine of Normal Women—Theobald, in examining the urine of women, found albumin in clinical amounts in 26 of 110 college girls, or 23.6 per cent, 843 of 5,042 postoffice girls, or 16.7 per cent, and 75 of 912 charwomen over 25 years of age, or 8.2 per cent, while only 10 of 22 women medical students consistently passed urine that was either free from albumin or contained less than a trace. In the majority of morning specimens examined not a single cast was seen and on no occasion was more than one granular cast observed. The incidence of albuminuria would not appear to be related to the age of onset of menstruation. Sugar was not detected in clinical amounts in any sample of urine but was frequently found in small amounts in the first urine passed in the morning or in the evening and was least often found in that passed after breakfast or lunch. Twenty-four hour samples of urine are useless for investigating glycosuria or albuminuria, and in the investigation of a case of non-nephritic albuminuria the sample of least value is that passed on arising. Not only is the incidence of albuminuria during the sixth month of pregnancy so low as to demand an explanation, but an existing non-nephritic albuminuria tends to clear up during the early months of pregnancy.

Paris Médical

1:45 72 (Jan 21) 1933

- Dermatology in 1933. G. Milian and L. Brodier.—p. 45
*Anthrax Simulated by Venomous Stings. Gougerot and Ragu.—p. 51
Mercurochrome in Dermatology. J. Gaté and P. Cuilleret.—p. 53
Recurrent Herpes. L. Perin.—p. 55
Biotropic Gold Salts. Asdery.—p. 62
*Treatment of Lichen Planus by Ultraviolet Rays. Elisabeth Skwirsky.—p. 66

Anthrax Simulated by Venomous Stings—Gougerot and Ragu state that the bites of venomous insects may occasionally resemble the cutaneous lesions of anthrax. The anamnesis of a sting, the rapidity of the growth, the soft scab, the ring of vesicles and the painful red edema make it appear identical with anthrax at first, but the absence of general symptoms contradicts this diagnosis and the negative result of bacteriologic examination, the favorable evolution of the disease, without serum therapy or intense local therapy, confirms the diagnosis of venomous insect bite and removes the anxiety of the prognosis of anthrax and the need for a painful, unpleasant treatment.

Lichen Planus—Skwirsky describes the treatment of lichen planus with ultraviolet rays used in the service of Milian. Practically no failures and only exceptional recurrences have been encountered. It is of the utmost importance to give the erythema dose, lesser doses are not only useless but accustom the skin to rays of short wavelength and make it resistant to future applications. Severe painful reactions are rare in persons with lichen planus, and soothing medicaments, which retard cure, are not required, in exceptional cases, simple starch baths may be given. The patient should be carefully examined at each sitting, insolation should not be repeated on a zone still painful from previous insolation. For treatment of generalized lichen planus the body is divided into four irradiation zones, which are irradiated successively every other day with the erythema dose. After these four applications of the erythema dose have been given, the irradiations are applied alternately to the anterior and the posterior surface of the body in periods gradually increased to forty-five minutes. The lamp should be at a distance of 60 cm. The irradiations should be continued till the eruptions have disappeared completely, twelve applications in the average case, and from fifteen to twenty in the resistant case usually suffice. Localized lichen planus is best treated by a lamp for local irradiation in which the rays come through an adjustable orifice which permits regulating the field of irradiation to the desired shape and size. Two irradiations of ten minutes at a distance of 10 cm. are given two days apart. Thereafter irradiations are given every other day, with the periods increased ten minutes each time up to a total of forty-five minutes and with the lamp at a distance of 60 cm. For the treatment of buccal lichen planus a special compressor composed of a quartz cylinder 2 cm. in diameter and 20 cm. long, curved at the distal end, is attached to the local irradiation lamp in a manner that permits rotation in all directions. In the first irradiation the tolerance of the patient is determined. The second irradiation is started by applying the end of the compressor directly to the lesion and compressing it for two minutes, this is followed by irradiation for six minutes with the end of the compressor 1 cm. from the lesion. The applications of compression and irradiation are given every other day with gradual increase up to fifteen minutes for posterior lesions and twenty minutes for anterior lesions. Lingual lesions may be irradiated longer if the throat can be protected.

Presse Médicale, Paris

41 113 136 (Jan 21) 1933

- *Treatment of Diabetes by Insulin in Oil. M. Labbe, R. Boulin and Daunois.—p. 113
Cutaneous Allergy in Pathogenesis of Vesiculo-Edematous Arsenical Erythrodermia. A. Sezary and G. Mauric.—p. 115
*New Method of Vaccination by Anabacteria. R. Legroux.—p. 118
*Rare Manifestation of Alimentary Anaphylaxis. A. Haritantis.—p. 119

Treatment of Diabetes by Insulin in Oil—Labbe and his associates have experimented with oily suspensions of insulin in the treatment of diabetes. In view of the fact that the injections are complicated, that it is doubtful whether the tissues can endure the penetration of the substances contained in these preparations for a lifetime, and that there is no proof that large amounts of insulin are not stored and may penetrate the circulation suddenly and provoke severe accidents, the authors think

that it is better to continue using the aqueous preparations of insulin pending further research with the only preparations

Vaccination by "Anabacteria"—Legroux applies the term "anabacteria" to a formalized autolysate obtained from macerated aqueous bacterial suspensions. With anabacteria obtained from *Bacillus mallei* and *B. pestis* he has successfully vaccinated guinea-pigs against glanders and plague, respectively. With the anabacteria of *B. mallei* he has cured glanders in guinea-pigs and has produced an antibacterial horse serum which effectively immunized donkeys against glanders.

Alimentary Anaphylaxis—Maritanti reports a case of alimentary anaphylaxis that lacked the classic clinical symptoms of anaphylaxis. The principal clinical symptoms were an intermittent daily fever, which had lasted for three months, and gross hepatic hypertrophy. A slight leukopenia after meals and a periodic, temporary erythema of the scalp were the only suggestions of a possible alimentary anaphylaxis. An albumin free diet resulted in complete apyrexia and a considerable decrease in the size of the liver in six days. The production of a typical hemoclastic crisis by administration of an albuminous meal (milk) to the fasting patient after eleven days of an albumin free diet showed that the proteopexic function of the liver was impaired, various tests could discover no other hepatic insufficiency. The sensitization to albumins was further confirmed by cutaneous reaction and tachyphylaxis. A third experiment consisted in administration of a light albuminous meal after twenty days of a vegetable diet, during which period the patient had been afebrile. This meal produced not only a hemoclastic shock but a fever, thereby definitely confirming the anaphylactic nature of the patient's fever. Desensitization was accomplished in one month by combined oral and parenteral administration of peptone solutions. The author thinks the alimentary anaphylaxis in this case was probably the cause of the symmetrical hepatomegaly as well as the fever, rather than the result of the hepatic disturbance.

Diagnostica e Tecnica di Laboratorio, Naples

3 829 924 (Oct. 25) 1932

*New Method of Diagnosis of Hepatic Diseases by Means of Hemoclastic Crisis. L. Jacchia—p. 829.
Is Antigen Indispensable in Deviation of Complement Test for Syphilis? V. Pennati and U. Sbutegeti—p. 854.

Hemoclastic Crisis in Diagnosis of Hepatic Diseases

—Jacchia has observed that an injection of 2 cc. of liver extract in the median cubital vein or the gluteal muscles of patients suffering from diseases of the liver occasions a hemoclastic crisis. The author obtained sixteen positive results while experimenting with seventeen patients, and ten negative results in ten persons with normal livers. Results were negative in four tests performed with intravenous injections of 1 cc. of a mixture of chiniofon and casein. In cases giving a positive reaction, the extract brought about a definite leukopenia with diminution of the leukocytes varying from 1,000 to 4,000 cells per cubic millimeter. The leukopenia was proportionate to the quantity of extract injected. Two hours after intravenous injection, a leukocytosis developed in contrast to the leukopenia. The leukopenia was often accompanied by a relative lymphocytosis, developed at the expense of the polymorphonuclear neutrophils. This lymphocytosis diminished but did not disappear two hours after the injection. In all cases there was a slight fall of the arterial pressure but within restricted limits (between 5 and 15 mm. mercurcy), and a rise in pressure was never observed after the injection. The variations in the arterial pressure lasted two hours. In a patient with simple catarrhal jaundice, the extract occasioned a striking leukopenic reaction (diminution of 2,790 leukocytes) without lymphocytosis, and a slight drop in arterial pressure during the acute phase of the disease, during convalescence, some twenty-five days later, another injection of the same extract gave a negative result, producing a leukocytosis (increase of 1,240 leukocytes after half an hour and 1,550 after two hours) instead of a leukopenia, did not modify in any way the leukocytic formula, and only slightly increased the arterial pressure half an hour after the injection. The author found that the maximum intensity of the reaction was reached half an hour after the intravenous injection and one hour after the intramuscular injection. He believes this was caused by anaphylactic phenomena brought on by protein substances. He plans further experiments to clear up this point.

Polichinico, Rome

40 164 (Jan. 15) 1933 Surgical Section

*Resections of Epididymis Followed by Implantation of Vas Deferens in Testis. V. Alberti—p. 1.
Postoperative Pulmonary Complications. G. Baggio—p. 14.
Transplantation of Spontaneous Rat Sarcoma by Means of Intravenous Injection of Tumoral Pulp. G. Gucci—p. 22.
*Gastric Hemorrhages of Obscure Origin. G. Pupini—p. 31.
Malignant Renal Tumors of Infants. S. Scandurra—p. 50.

Resection of Epididymis—Alberti reviews the literature of the pathologic lesions of the epididymis with especial attention to tuberculosis of the testis and to nonspecific and fibrous epididymitis. He reports six cases with extensive resection of the head of the epididymis followed by immediate reimplantation of the vas and accurate covering up, by means of interrupted catgut sutures, of the epididymal or deferential flap with the testis and consequent reconstruction of the external layers. The clinical results were deemed entirely satisfactory.

Gastric Hemorrhages—Pupini describes a case of parenchymatous gastrorrhagia of probable inflammatory origin (hemorrhagic gastritis) of six years' duration and refers incidentally to two other patients, observed for a number of years, with nonulcerous gastric hemorrhages. The author states that the diagnosis of gastrorrhagia of nonulcerative origin due to primary lesions of the stomach and not ascribable to local or general extragastric diseases is extremely difficult and should be made only by exclusion. These hemorrhages can be caused by circumscribed lesions (aneurysms, primary but not military varicose veins), by diffuse lesions of the gastric wall (arteriosclerosis, syphilis, amyloid degeneration of the blood vessels), or by obscure etiologic alterations of the mucosa of the stomach (gastritis). The author maintains that it will always be impossible to differentiate between them clinically and that they should be called parenchymatous hemorrhages due to diffuse alterations of the wall of the stomach. The author deems it best to operate only in cases unresponsive to medical treatment. In many cases extensive gastric resections do not always give sure results, whereas gastro-enterostomy often does. The author states in conclusion that prolonged postoperative, medical, dietetic and climatic treatment (transfusions of solutions of calcium salts, high mountain climate and so on), is of palliative value.

Riforma Medica, Naples

40 77 116 (Jan. 21) 1933

Extrarenal Component of Nephritis Hyposthenuria. F. Serio—p. 86.
*Inconveniences of Acridinic Treatment and Ungual Alteration Due to Acriflavine Hydrochloride. L. Ciarrocchi—p. 91.
Postoperative Peptic Ulcer Ending in Gastric Fistula. L. Rieppi—p. 107.

Inconveniences of Acridinic Treatment and Ungual Alteration Due to Acriflavine Hydrochloride—Ciarrocchi discusses the disturbances resulting from the intravenous injection of acridine yellow derivatives. He cites the following as immediate disturbances recorded in the literature: sensations of heat at the face, neck and genitalia, tachycardia, bradycardia, olfactory paresthesia, facial congestion, constriction at the neck, sensation of precordial weight, nausea followed by biliary and alimentary vomiting, cephalgia and vertigo. He gives as late disturbances: gastralgia, alimentary vomiting, diarrhea, primary acridinic jaundice, fever, frequent and painful micturition, acute nephritis, arthritis, yellowish cutaneous discoloration and erythema. He states that the immediate disturbances occur in most patients after the first injection of acridine and that the late manifestations occur rarely. To these he adds now a leukonychia of the thumbs found in two patients treated with an intravenous injection of 5 cc. of a 20 per cent solution of acriflavine hydrochloride. One patient, whose hands had been exposed to the sun on an average of three hours daily, developed an immediate total white discoloration of the unguis lamina, the other, who had been less exposed to the sun, developed only a partial leukonychia six weeks after the injection. The author has reviewed a large number of clinical cases treated with acridine and found that the late disturbances seldom occurred unless the patient had previous hepatic or renal alterations. He has found but one fatal case, a patient with gradual endocarditis who, six days before death, had been given an intravenous injection of 20 cc. of a 1 per cent solution of acriflavine hydrochloride. He concludes that acridine derivatives rarely cause serious dis-

turbances and are in general successfully administered in most diseases such as pneumonia, meningitis, endocarditis, streptococcal and staphylococcal septicemia, epidemic encephalitis, acute articular rheumatism, pyelonephritis and chronic urticaria

Archiv für Verdauungs-Krankheiten, Berlin

53 1144 (Jan) 1933

- Is Dark Brown Bile (B Bile) Always Bile from Gallbladder? M Einhorn—p 1
Analysis of Icterus Gravis P A Barchasch—p 9
Chronic Intermittent Duodenal Stasis. J Friedenwald and M Feldman—p 20
Typical Changes in Alimentary Blood Sugar Curve in Allergic Conditions P Spiro—p 32
Coronary Thrombosis and Diabetes G Gottsegen—p 36
Lymphogranulomatosis of Stomach G Kopstein—p 41
Dependence of Health on Atmospheric Climatic Influences W Amelung—p 48
Investigations on Secretory Function of Stomach During Night Sleep N Henning and L. Norpoth—p 64
Porphyrins and Their Significance in Pathology of Digestion I Boas—p 87

Coronary Thrombosis and Diabetes—Gottsegen describes two cases in which a coronary thrombosis existed simultaneously with disturbances in the carbohydrate metabolism. He considers unjustified the opinion that in the occurrence of these two conditions diabetes is always the causal factor. Just as diabetes, which frequently is congenitally combined with arteriosclerosis, may further the development of the latter and thus cause changes in the coronary vessels, so coronary thrombosis in the presence of generalized arteriosclerosis may cause various disturbances in the sugar metabolism, from transitory glycosuria to diabetes.

Gastric Secretion During Sleep—Henning and Norpoth studied the gastric secretion of ninety-one sleeping persons, some healthy and some with gastric disturbances. They found that in healthy persons the secretory function rested completely during the entire period of nightly sleep. In a great number of patients with gastric disorders, largely duodenal ulcer, maximal secretion of gastric glands was observed, but a continuous secretion during the nightly sleep was observed also in cases of chronic hypertrophic gastritis and in some persons who, although they were free from gastric complaints, showed signs of sympathetic neurosis. In a number of these patients it was possible to demonstrate continuous gastric secretion during the nightly sleep over longer periods. The authors discuss the significance of their observations for the pathogenesis of ulcer and the pains produced by ulcer. They think that the described method is the only one that gives a true picture of the gastric secretion, because it eliminates disturbing, psychic influences.

Deutsche medizinische Wochenschrift, Berlin

59:119156 (Jan 27) 1933

- Agony and Death in Early Nursing Age. A. Peiper—p 119
Observations and Investigations on Haif Disease in 1932 H Assmann H Bielenstein H Hahs and B zu Jeddelloh—p 122
Porphyrins and Their Significance in Pathology of Digestion I Boas—p 126
Delimitation of Heart and Percussion E. Mosler—p 128
Artificial Stiffening of Mediastinum H Polano—p 130
Demonstration of Tumor Cells in Punctates and in Sputum E von Zalka—p 132
Hemorrhagic Meningitis Following Sunstroke. G A Hoppe—p 133
Behavior of Skin Capillaries in Exophthalmic Goiter M Michael and W Buschke—p 134
Influence of Liver Extracts on Course of Phenylhydrazine Anemia L. Friedlander and E. Steinits—p 135

Porphyrins in Pathology of Digestion—Boas has investigated the stercoporphyryns as well as the porphyrins found in the urine. In discussing the stercoporphyryns he gives especial attention to the diagnostic significance of deuteroporphyry. This porphyrin has a clinical diagnostic significance for those rare cases of carcinoma of the esophagus, stomach or intestine in which the stools show no peroxidase reactions. But deuteroporphyry is of greater clinical significance in ulcers of the stomach and the duodenum and in peptic jejunal ulcers. In ulcers with positive blood reactions, the disappearance of deuteroporphyry and not the cessation of the reactions indicates that the ulcer reaches the stage of cicatrization. In ulcers that give a negative blood reaction, the repeated demonstration of porphyrin indicates the presence of an uncicatrized peptic defect. A constantly negative deuteroporphyry test, provided the blood reaction is likewise negative, positive roentgenologic signs not-

withstanding, indicates a cicatrized ulcer, eventually complicated by a chronic gastritis. The deuteroporphyry test is of significance also for the therapy in that an ulcer cannot be considered cured until it gives a negative result. The author investigated the occurrence of porphyrin in the urine primarily in biliary and in hepatic disorders. He emphasizes that it is necessary to differentiate between periodic and chronic porphyrinuria. The periodic form occurs in disorders that take a cyclic course. It was observed in cholecystopathies and in hepatopathies during the period of acute inflammation, and also following severe hematemesis or melena. The author observed chronic porphyrinuria particularly in metastatic carcinoma of the liver and in carcinoma of the gallbladder, but also in untreated cases of pernicious anemia. Coproporphyrin was the form most often found in porphyrinuria, but in a few instances another form was detected, which indicates that protoporphyry may likewise occur in the urine. The author points out that methods combining simplicity and exactness are still lacking for the determination of porphyrins in the feces and in the urine. He realizes that for the stercoporphyryns this will hardly be possible, but he thinks that efforts should be made to improve the methods for the determination of porphyrins in the urine.

Klinische Wochenschrift, Berlin

12:129168 (Jan 28) 1933 Partial Index

- Sleep Aspects and Mechanism. W R Hess—p 129
Pain in Angina Pectoris S Dietrich and H Schwiegk—p 135
Blood Perfusion and Energy Exchange of Kidney H Glaser D Laszlo and A Schurmeyer—p 138
Modification of Growth of Micro Organisms by Irradiation with Short Wavelengths P Liebesny H Wertheim and H Scholz—p 141
Effect of Implantation of Hypophysis Under Various Conditions F Siebert—p 145
Quantitative Determination of Porphyrin in Urine H T Schreus and C Carrie—p 146
Intraperitoneal Injection of Mersalyl K. Hartl—p 148
Chemical and Secretory Changes in Bile Under Influence of Thyroxine S Leites and R. Isaholinskaja—p 149

Pain in Angina Pectoris—Following introductory remarks about former theories on the pathogenesis of pain in angina pectoris, Dietrich and Schwiegk relate their own observations, particularly their electrocardiographic studies during oxygen deficiency. These revealed that want of oxygen produces changes in the electrocardiogram of healthy persons, and that similar but more pronounced electrocardiographic changes were noted in patients who are subject to attacks of angina pectoris. Development of pains similar to those of a spontaneous attack was also observed during oxygen deficiency of patients subject to angina pectoris. The authors think that during an attack of angina pectoris there exists an ischemia of the cardiac muscle and that not only the changes in the electrocardiogram but also the pains are a result of this ischemia. They consider it improbable that in addition to the oxygen deficiency there also exists a spasm of the coronary arteries, because as long as anoxemia persists it is impossible to counteract the pain by administration of glyceryl trimtrate. The authors hope that their method of deficient oxygen respiration will help also in differentiating various forms of angina pectoris, which would be important not only for the prognosis but also for the therapy.

Quantitative Determination of Porphyrin in Urine—Schreus and Carrie, after evaluating three other methods for the determination of porphyrin in the urine, namely, weighing, the fluorescence method and the colorimetric method, describe their experiences with the spectrophotometric method. The quantitative determination of porphyrin by means of the spectroscopic method is based on the observation that the intensity of the absorption band of porphyrin solutions is proportional to their porphyrin content. Thus, if the absorption band of solutions of known porphyrin content is compared in the spectroscopic with that of solutions of unknown content, the porphyrin content of the latter can be readily detected. After a short review of the technique, which has been described in a previous publication (*Klin Wchschr* 10 1017 [May 30] 1931), the authors discuss sources of error that may develop in the separation of coproporphyrin. Then they discuss the application of the method in the determination of uroporphyrin, and certain technical points that may be helpful in some instances. They emphasize that the spectrophotometric determination of porphyrin fulfills all the requirements of a clinical quantitative method of demonstration.

Munchener medizinische Wochenschrift, Munich

80 125 164 (Jan 27) 1933

- Kallikrein (Circulatory Hormone Produced in Pancreas) in Blood E. K. Frey —p 125
 Diagnostic Evaluation of Blood Culture According to Löwenstein in Experimental Tuberculosis of Guinea Pigs P. Manteufel and E. Kottmann —p 126
 Measures to Induce Labor I. H. Bardenheuer —p 127
 *Sodium Salt of Barbituric Acid Derivative a New Substance for General Anesthesia by Intravenous Injection M. Ernst —p 128
 Retrobulbar Neuritis I. Schneck —p 130
 Ascending Form of Nephritis R. Schöen —p 132
 Method for Demonstration of Allergy L. Urbach —p 134
 Female Genital Infection and Record Accomplishments in Athletics H. Kistner —p 137
 Roentgenologic Diagnosis of Tumorous Bone Diseases R. Kienböck —p 140
 Experiences with Hip Joint Bandage G. Hohmann —p 144
 Fractures of Spinous Processes and Their Peculiar Causes Bofinger —p 146
 Healing Processes After Vertebral Fractures O. Dies —p 147
 Magnesium Oxide Externally and Internally in Ichthyosis A. Cedercreutz —p 149

Sodium Salt of Barbituric Acid Derivative as New Anesthetic—Ernst points out that, although the methods of general anesthesia applicable in clinics and hospitals have been greatly improved in recent years, the physician in general practice, particularly in emergency surgery, was still at a disadvantage. Recently a sodium salt of a barbituric acid derivative has been prepared and found to produce a satisfactory short general anesthesia. Tests revealed that the intravenous injection of 10 cc of a 10 per cent aqueous solution of the sodium salt is the best method of application. The injection should be made slowly and cautiously. The author advises injecting the first 4 cc within the first minute, and then taking from eight to ten seconds for each additional cubic centimeter. The injection is entirely painless. The duration of the anesthesia varies in different persons and according to the quantity of anesthetic injected. The average length is from fifteen to twenty minutes, but occasionally longer. This period, during which the reflexes are abolished, is followed by a quiet but shallow sleep of variable length. Self observations of several physicians, who had experienced several types of anesthesia, were to the effect that this anesthetic is more pleasant to take than any other. The harmlessness of this method of anesthesia is proved by the fact that there occurred not a single serious complication in 250 administrations. Secondary effects were observed only in a few instances: headaches twice, nausea three times, diplopia once and excitability twice. These slight disadvantages are more than compensated by the advantages. The fact that this anesthetic exerts little influence on circulation and respiration makes its use advisable in old persons and in those with impaired cardiac action. In diseases of the respiratory passages its use is less dangerous than that of the usual inhalation anesthetics or tribrom-ethanol. Diseases of the liver and of the kidney are no contraindication to the use of the sodium salt of the barbituric acid derivative, and the possibility of repeated application is another advantage of the preparation. The author employed the new method of anesthesia most frequently in pyogenic infections, phlegmons, abscesses, opening of pleural empyemas, and various other surgical interventions in which local anesthesia is less satisfactory, such as in reposition of dislocations and fractures of the joints.

Wiener klinische Wochenschrift, Vienna

46 97 128 (Jan 27) 1933

- *Causes of Renal Insufficiency Produced by Retention of Urine Their Significance for Surgery of Prostate H. Rubritius —p 97
 Results in Four Hundred Meniscus Operations T. Mandl —p 102
 Diagnostic Errors in Endocrinology M. Breitmann —p 103
 *Chemical Diagnosis of Malignant Tumors (Cancer Reaction of Fuchs) H. J. Fuchs and W. K. Devrient —p 108
 *Peculiar Effects of Parathyroid Extract Action on Varicose Ulcer of Leg and on Alveolar Pyorrhea Anna Sucher —p 109
 *Rectal Diathermy in Gynecologic Disorders of Inflammatory Nature B. von Bodo —p 110
 Symptoms and Treatment of Several Forms of Poisoning H. Schlesinger —p 112
 Whooping Cough R. Neurath —p 113
 Quinine Therapy of Pneumonia M. Weinberger —p 114

Renal Insufficiency Produced by Retention of Urine—In discussing the causal factors of urinary retention, Rubritius calls attention to studies made by Fuchs which revealed that complete evacuation of the bladder is accompanied by a contraction of the upper urinary passages, whereas gradual filling of the bladder results in a dilatation of the upper urinary

passages. This author was able to show also that the condition was not due to mechanical stasis but rather to a reflex action. This reflex is evidently produced by dilatation and burdening of the vesical fundus. Elimination urography in patients with hypertrophy of the prostate convinced Rubritius that in the beginning stages of prostatic hypertrophy the contraction and dilatation of the ureters is promptly elicitable, whereas in patients with retention of urine the upper urinary passages show nearly always a dilatation, that is, the dilated condition has become more or less fixed. Moreover, this dilatation is accompanied by an hypertrophy of the ureteral musculature. The author discusses the effect of these changes in the upper urinary passages on the renal parenchyma, and the second causal factor of urinary retention, namely, the vesico-ureteral reflux. It is important whether the vesico-ureteral reflux takes place while the urine is clear, that is, in a patient without infection, or in a patient in whom infection is present. If infection exists, reflux may lead to a serious infection of the renal parenchyma. The author shows that operative treatment of prostatic hypertrophy has a prospect of success only if an existing renal insufficiency, no matter whether it is caused by retention or by infection, can be brought to regress. Since the symptoms of renal insufficiency are usually too slight to permit a diagnosis, the author recommends the water and concentration test and the determination of the rest nitrogen and of the indican content of the blood serum to determine the condition of the renal function. He considers the water and concentration test particularly valuable. The main factor in overcoming renal insufficiency is to do away with the stasis. In mild cases this is best done by the retention catheter, and in severe cases by a suprapubic fistula. The author shows that age is no contraindication to operative treatment and maintains that a prostatectomy under local anesthesia is well tolerated by octogenarians. It is essential for the success of an operative intervention that it be performed before a serious renal insufficiency has developed.

Chemical Diagnosis of Malignant Tumors—Fuchs and Devrient call attention again (see abstracts in THE JOURNAL, Dec 3, 1932, p 1990, and Dec 31, 1932, p 2300) to the cancer reaction devised by Fuchs several years ago. They emphasize that with this method it is possible to detect the presence of malignant tumors or of certain infectious diseases, and that the test also reveals the relationship between the aggressiveness of the disease and the defense power of the organism.

Action of Parathyroid Extract on Ulcer of Leg and on Alveolar Pyorrhea—Sucher states that the favorable effects of parathyroid hormone in angioneurotic conditions induced her to continue her experiments in this direction and to try it in the treatment of persistent ulcers of the leg. By means of a syringe, 1 cc of parathyroid extract, otherwise used for injection, is dropped on the ulcer and the ulceration is covered with dry sterile gauze. The extract is applied three times each week or every day. This external application is combined with internal administration of a calcium preparation. The result of the application of the parathyroid extract is that a torpid ulcer becomes hyperemic, granulation sets in, and finally complete cure is effected. Local application of the parathyroid extract was also tried in alveolar pyorrhea. The result was that the inflammatory manifestations and pains disappeared, but the looseness of the teeth was not influenced.

Rectal Diathermy in Gynecologic Disorders—According to von Bodo, diathermy is the most effective of the physical methods employed in the treatment of disorders of the female genitalia. Of the three methods of application, percutaneous, vaginal and rectal, the vaginal method is the one that is most frequently employed. However, the author maintains that in certain inflammatory processes of the small pelvis, particularly in inflammation, contraction and rigidity of the sacro-uterine ligaments, the rectal method of application is superior. He found the olive electrode of Kelen to be best suited for rectal diathermy. Rectal application has to be done with great care, because the nearness of the sacrum increases the danger of burning. The increase in heat should be gradual to a maximum of not more than 15 amperes. The application lasts from twenty to thirty minutes. The author employed the abdominodorsorectal diathermy in 120 cases. There was posterior parametritis in thirty-five of these cases, retrofixation of the uterus in twenty-five, salpingo-oophoritis in twenty-four, tumor of the

adnexa with posterior parametritis in sixteen, and parametritis of the right or left side and posterior parametritis in twenty. The result was that cure or complete restitution was obtained in 47 per cent of the patients, improvement was noticeable in 45 per cent, and the treatment was entirely ineffective in only 8 per cent. In the course of two years, 12 per cent of the patients had relapses. The author further gives his theory of the mechanism of the diathermy treatment.

Zeitschrift für klinische Medizin, Berlin

123 1302 (Jan 17) 1933 Partial Index

- Iminazol Derivatives in Deproteinized Blood and in Other Body Fluids (Transudates and Exudates) F Kauffmann and W Schulz—p 1
- Demonstration of Epinephrine Secretion in Human Beings F Brandt and G Katz—p 23
- Clinical Aspects of Infantile C Mandowsky—p 51
- Influence of Organ Extracts on Hemolysis with Especial Consideration of Liver Extracts L Pincus—p 55
- Observations in Heart Ruptures (Also Contribution to Problem of Angina Pectoris) R Jaffe and K Bross—p 63
- *Clinical Significance of Notched Auricular Wave in Electrocardiogram G Spehr—p 85
- Demonstration in Blood of Substances Increasing Capillary Permeability Following Roentgen Irradiation A Beutel and O Klein—p 104
- Physiology of Kidneys G von Tarkas—p 111
- *Gastritis and Genesis of Gastric Ulcer Infection of Upper Intestinal Tract by Yeasts. A. Meyer—p 125
- Position of Rheumatic Nodosis in Course of Rheumatic Infection A Meyer—p 142
- Epinephrine Content of Peripheral Human Blood in Muscular Exertion W G Katz—p 154
- Mechanism of Antagonistic Action of Epinephrine and Insulin W Scheer—p 159
- Diagnosis of Vascular Function J Plesch—p 168
- Epidemiology Clinic and Therapy of Diphtheria F Reiche—p 211
- *Biglandular Endocrine Disease (Thyrosuprenal Type According to M B Schmidt) with Aspects of Acute Addison's Disease R Klingner—p 242

Notched Auricular Wave—Spehr states that in 4,000 electrocardiographic investigations on persons with and without circulatory disturbances he observed 180 cases with notching of the auricular wave. Continuous tests revealed that the symptom may be constant or periodic. It was found seventeen times in patients without circulatory disorders, but all these patients had a sympathetic neurosis. As a rule, notching of the P wave was found in patients with circulatory disorders. But the circulatory condition is not an important factor, for most of these patients showed a well compensated circulation. A slight increase in incidence was noted in insufficiency of the left with good functioning of the right heart. In the majority of cases that came up for postmortem examination a myocardial impairment of the auricles could be noted, but in some instances macroscopic examination revealed no anomalies. On the other hand, it is known that numerous cases of myocarditis of the auricles do not show notching of the auricular wave. Consequently the author assumes that the notched wave becomes manifest only if certain channels of the auricles are impaired by organic or functional disturbances. The author does not consider the notched auricular wave merely a variation within the sphere of normality as has been done by others. The organic causes of the notched P wave can be differentiated into degenerative and inflammatory myocardial changes. In the degenerative forms primarily coronary sclerosis and chronic disorders of the cardiac muscle, repeated examination revealed notching to be a constant anomaly. In acute inflammatory myocarditis that nearly always concurs with infections and particularly rheumatic diseases, the notched P wave is an early symptom of myocarditis but it usually disappears again. Cases of rheumatic myocarditis and endocarditis, in which the notching of the P wave does not disappear or even increases after the acute manifestations have subsided have an unfavorable prognosis. It was observed repeatedly that the increase in notching was accompanied by a decompensation in the form of neutralization. The notching of the P wave is also frequently noted before the development of absolute arrhythmia. The author considers the occurrence of notching of the P wave during sympathetic neurosis the result of a disturbance in the innervation of the heart which in turn affects the conduction system or the blood supply of the heart for as a rule these patients also have bradycardia and prolonged conduction time.

Gastritis and Genesis of Gastric Ulcer—Meyer shows that the term gastritis is often used in a rather vague manner and he advises that the diagnosis of gastritis should be based only on definite signs. As such he considers the leukocyte con-

tent of the secretion of the fasting stomach and the bacteriologic observations on the gastric and duodenal juices. Acute gastritis and fermentation dyspepsia can be produced by relative insufficiency of the digestive organs, but the infectious factor seems to be of greater significance. An important cause of chronic gastritis is *Monilia albicans*, and peptic ulcer that frequently develops from chronic gastritis is an infection of the wall of the stomach with *Monilia albicans*. The author discusses the significance of fungi, particularly yeasts, for enteritis and he gives several case reports to illustrate this.

Biglandular Endocrine Disease with Aspects of Addison's Disease—Klingner describes the clinical history of a patient who for three weeks showed the symptoms of acute Addison's disease and then, within a few days, died of severe meningitis with encephalomyelitic manifestations. The necropsy revealed that the patient had had a biglandular endocrine disorder of the thyrosuprenal type. The changes in Addison's disease and have been designated "cytotoxic contracted suprarenals" with primary destruction of the cortex. The author is inclined to consider that the more or less analogous changes in the thyroid likewise are cytotoxic. He believes that the disease is caused by toxic factors the nature of which is not yet understood. The described case may corroborate the opinion of some authors, who assume that constitutional factors play a part in the pathogenesis of such conditions. The anatomic changes may have existed several years previous to the acute manifestation. The terminal meningitic encephalomyelitic manifestations are most likely of toxic origin, since an anatomic cause was not found. An intercurrent mild form of otitis media evidently was sufficient to produce the severe manifestations that resulted in death. The predominant destruction of the suprarenal cortex with comparatively well preserved medulla may explain the absence of a reduction in the blood sugar content, and the same factor may be responsible for the absent or only slightly developed atypical pigmentation. The nitrogen rest was increased over 100 per cent, but the kidneys revealed no changes that could be considered the cause of this. On the basis of investigations conducted by others the author thinks it possible that the suprarenal cortex influences the nitrogen elimination. The involvement of the thyroid was not indicated by clinical manifestations, and cases of this nature that have been reported before likewise presented the aspects of Addison's disease and showed no symptoms indicative of a myxedema. This explains why there are no records of tests of the basal metabolism or of the iodine content of the blood. The majority of cases that have been reported so far were in women of the menopausal age.

Zeitschrift für urologische Chirurgie, Berlin

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- Contributions to Physiology of Secretion of Urine L. Asher—p 167
- Effect of Urine of Renal Tuberculosis Patients on Uterus of Guinea Pigs Susceptible to Tuberculosis W Jadassohn and O Bucher—p 185
- *Lightening the Burden of Patients with Inoperable Prostatic Carcinoma Kirschner—p 191
- Changes in Bladder Result of Amino Dyes A Müller—p 202
- Observations on Excretory Urography in Renal Tuberculosis C Ravasin—p 243
- *Restoration of Renal Function Following Removal of Obstructing Lesions W Walters—p 264
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Sodium Salt of Barbituric Acid Derivative as New Anesthetic—Ernst points out that, although the methods of general anesthesia applicable in clinics and hospitals have been greatly improved in recent years, the physician in general practice, particularly in emergency surgery, was still at a disadvantage. Recently a sodium salt of a barbituric acid derivative has been prepared and found to produce a satisfactory short general anesthesia. Tests revealed that the intravenous injection of 10 cc of a 10 per cent aqueous solution of the sodium salt is the best method of application. The injection should be made slowly and cautiously. The author advises injecting the first 4 cc within the first minute, and then taking from eight to ten seconds for each additional cubic centimeter. The injection is entirely painless. The duration of the anesthesia varies in different persons and according to the quantity of anesthetic injected. The average length is from fifteen to twenty minutes, but occasionally longer. This period, during which the reflexes are abolished, is followed by a quiet but shallow sleep of variable length. Self observations of several physicians, who had experienced several types of anesthesia, were to the effect that this anesthetic is more pleasant to take than any other. The harmlessness of this method of anesthesia is proved by the fact that there occurred not a single serious complication in 250 administrations. Secondary effects were observed only in a few instances: headaches twice, nausea three times, diplopia once and excitability twice. These slight disadvantages are more than compensated by the advantages. The fact that this anesthetic exerts little influence on circulation and respiration makes its use advisable in old persons and in those with impaired cardiac action. In diseases of the respiratory passages its use is less dangerous than that of the usual inhalation anesthetics or tribrom-ethanol. Diseases of the liver and of the kidney are no contraindication to the use of the sodium salt of the barbituric acid derivative, and the possibility of repeated application is another advantage of the preparation. The author employed the new method of anesthesia most frequently in pyogenic infections, phlegmons, abscesses, opening of pleural empyemas, and various other surgical interventions in which local anesthesia is less satisfactory, such as in reposition of dislocations and fractures of the joints.

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Renal Insufficiency Produced by Retention of Urine—In discussing the causal factors of urinary retention, Rubritius calls attention to studies made by Fuchs which revealed that complete evacuation of the bladder is accompanied by a contraction of the upper urinary passages, whereas gradual filling of the bladder results in a dilatation of the upper urinary

passages. This author was able to show also that the condition was not due to mechanical stasis but rather to a reflex action. This reflex is evidently produced by dilatation and burdening of the vesical fundus. Elimination urography in patients with hypertrophy of the prostate convinced Rubritius that in the beginning stages of prostatic hypertrophy the contraction and dilatation of the ureters is promptly elicitable, whereas in patients with retention of urine the upper urinary passages show nearly always a dilatation, that is, the dilated condition has become more or less fixed. Moreover, this dilatation is accompanied by an hypertrophy of the ureteral musculature. The author discusses the effect of these changes in the upper urinary passages on the renal parenchyma, and the second causal factor of urinary retention, namely, the vesico-ureteral reflux. It is important whether the vesico-ureteral reflux takes place while the urine is clear, that is, in a patient without infection, or in a patient in whom infection is present. If infection exists, reflux may lead to a serious infection of the renal parenchyma. The author shows that operative treatment of prostatic hypertrophy has a prospect of success only if an existing renal insufficiency, no matter whether it is caused by retention or by infection, can be brought to regress. Since the symptoms of renal insufficiency are usually too slight to permit a diagnosis, the author recommends the water and concentration test and the determination of the rest nitrogen and of the indican content of the blood serum to determine the condition of the renal function. He considers the water and concentration test particularly valuable. The main factor in overcoming renal insufficiency is to do away with the stasis. In mild cases this is best done by the retention catheter, and in severe cases by a suprapubic fistula. The author shows that age is no contraindication to operative treatment and maintains that a prostatectomy under local anesthesia is well tolerated by octogenarians. It is essential for the success of an operative intervention that it be performed before a serious renal insufficiency has developed.

Chemical Diagnosis of Malignant Tumors—Fuchs and Devrient call attention again (see abstracts in THE JOURNAL, Dec 3, 1932, p 1990, and Dec 31, 1932, p 2300) to the cancer reaction devised by Fuchs several years ago. They emphasize that with this method it is possible to detect the presence of malignant tumors or of certain infectious diseases, and that the test also reveals the relationship between the aggressiveness of the disease and the defense power of the organism.

Action of Parathyroid Extract on Ulcer of Leg and on Alveolar Pyorrhea—Sucher states that the favorable effects of parathyroid hormone in angioneurotic conditions induced her to continue her experiments in this direction and to try it in the treatment of persistent ulcers of the leg. By means of a syringe, 1 cc of parathyroid extract, otherwise used for injection, is dropped on the ulcer and the ulceration is covered with dry sterile gauze. The extract is applied three times each week or every day. This external application is combined with internal administration of a calcium preparation. The result of the application of the parathyroid extract is that a torpid ulcer becomes hyperemic, granulation sets in, and finally complete cure is effected. Local application of the parathyroid extract was also tried in alveolar pyorrhea. The result was that the inflammatory manifestations and pains disappeared, but the looseness of the teeth was not influenced.

Rectal Diathermy in Gynecologic Disorders—According to von Bodo, diathermy is the most effective of the physical methods employed in the treatment of disorders of the female genitalia. Of the three methods of application, percutaneous, vaginal and rectal, the vaginal method is the one that is most frequently employed. However, the author maintains that in certain inflammatory processes of the small pelvis, particularly in inflammation, contraction and rigidity of the sacro-uterine ligaments, the rectal method of application is superior. He found the olive electrode of Kelen to be best suited for rectal diathermy. Rectal application has to be done with great care because the nearness of the sacrum increases the danger of burning. The increase in heat should be gradual to a maximum of not more than 15 amperes. The application lasts from twenty to thirty minutes. The author employed the abdomino-dorsorectal diathermy in 120 cases. There was posterior parametritis in thirty-five of these cases, retrofixation of the uterus in twenty-five, salpingo-oophoritis in twenty-four, tumor of the

adnexa with posterior parametritis in sixteen, and parametritis of the right or left side and posterior parametritis in twenty. The result was that cure or complete restitution was obtained in 47 per cent of the patients, improvement was noticeable in 45 per cent, and the treatment was entirely ineffective in only 8 per cent. In the course of two years, 12 per cent of the patients had relapses. The author further gives his theory of the mechanism of the diathermy treatment.

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- Biglandular Endocrine Disease (Thyrosuprarenal Type According to M B Schmidt) with Aspects of Acute Addison's Disease R Klingner—p 242

Notched Auricular Wave—Spehr states that in 4,000 electrocardiographic investigations on persons with and without circulatory disturbances he observed 180 cases with notching of the auricular wave. Continuous tests revealed that the symptom may be constant or periodic. It was found seventeen times in patients without circulatory disorders, but all these patients had a sympathetic neurosis. As a rule, notching of the P wave was found in patients with circulatory disorders. But the circulatory condition is not an important factor, for most of these patients showed a well compensated circulation. A slight increase in incidence was noted in insufficiency of the left with good functioning of the right heart. In the majority of cases that came up for postmortem examination a myocardial impairment of the auricles could be noted, but in some instances macroscopic examination revealed no anomalies. On the other hand, it is known that numerous cases of myocarditis of the auricles do not show notching of the auricular wave. Consequently the author assumes that the notched wave becomes manifest only if certain channels of the auricles are impaired by organic or functional disturbances. The author does not consider the notched auricular wave merely a variation within the sphere of normality, as has been done by others. The organic causes of the notched P wave can be differentiated into degenerative and inflammatory myocardial changes. In the degenerative forms primarily coronary sclerosis and chronic disorders of the cardiac muscle, repeated examination revealed notching to be a constant anomaly. In acute inflammatory myocarditis that nearly always concurs with infections and particularly rheumatic diseases, the notched P wave is an early symptom of myocarditis but it usually disappears again. Cases of rheumatic myocarditis and endocarditis, in which the notching of the P wave does not disappear or even increases after the acute manifestations have subsided, have an unfavorable prognosis. It was observed repeatedly that the increase in notching was accompanied by a decompensation in the form of muralization. The notching of the P wave is also frequently noted before the development of absolute arrhythmia. The author considers the occurrence of notching of the P wave during sympathetic neurosis the result of a disturbance in the innervation of the heart which in turn affects the conduction system or the blood supply of the heart, for as a rule these patients also have bradycardia and prolonged conduction time.

Gastritis and Genesis of Gastric Ulcer—Meyer shows that the term gastritis is often used in a rather vague manner and he advises that the diagnosis of gastritis should be based only on definite signs. As such he considers the leukocyte con-

tent of the secretion of the fasting stomach and the bacteriologic observations on the gastric and duodenal juices. Acute gastritis and fermentation dyspepsia can be produced by relative insufficiency of the digestive organs, but the infectious factor seems to be of greater significance. An important cause of chronic gastritis is *Monilia albicans*, and peptic ulcer that frequently develops from chronic gastritis is an infection of the wall of the stomach with *Monilia albicans*. The author discusses the significance of fungi, particularly yeasts, for enteritis and he gives several case reports to illustrate this.

Biglandular Endocrine Disease with Aspects of Addison's Disease—Klingner describes the clinical history of a patient who for three weeks showed the symptoms of acute Addison's disease and then, within a few days, died of severe meningitis with encephalomyelitic manifestations. The necropsy revealed that the patient had had a biglandular endocrine disorder of the thyrosuprarenal type. The changes in the suprarenals resembled those that have been observed in Addison's disease and have been designated "cytotoxic contracted suprarenals" with primary destruction of the cortex. The author is inclined to consider that the more or less analogous changes in the thyroid likewise are cytotoxic. He believes that the disease is caused by toxic factors the nature of which is not yet understood. The described case may corroborate the opinion of some authors, who assume that constitutional factors play a part in the pathogenesis of such conditions. The anatomic changes may have existed several years previous to the acute manifestation. The terminal meningitic encephalomyelitic manifestations are most likely of toxic origin, since an anatomic cause was not found. An intercurrent mild form of otitis media evidently was sufficient to produce the severe manifestations that resulted in death. The predominant destruction of the suprarenal cortex with comparatively well preserved medulla may explain the absence of a reduction in the blood sugar content, and the same factor may be responsible for the absent or only slightly developed atypical pigmentation. The nitrogen rest was increased over 100 per cent, but the kidneys revealed no changes that could be considered the cause of this. On the basis of investigations conducted by others the author thinks it possible that the suprarenal cortex influences the nitrogen elimination. The involvement of the thyroid was not indicated by clinical manifestations, and cases of this nature that have been reported before likewise presented the aspects of Addison's disease and showed no symptoms indicative of a myxedema. This explains why there are no records of tests of the basal metabolism or of the iodine content of the blood. The majority of cases that have been reported so far were in women of the menopausal age.

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Patients with Inoperable Cancer of Prostate Gland—Obstruction to voluntary urination can be relieved by establishing a suprapubic bladder fistula. Invasion of the rectum with attending painful tenesmus and partial or complete obstruction of the intestine is treated by establishment of an artificial anus or by sectioning the end of the intestine and dividing the sphincter. Early and severe pains are characteristic of prostatic carcinoma. In the advanced inoperable cases the pain is frequently agonizing and unremitting. Kirschner feels that these unfortunates should be given the benefit of the latest advances in the control of unremitting pain. For this purpose three methods are available. 1 Chordotomy may be employed. The author sections the anterolateral columns of the spinal cord on both sides at the level of the fourth thoracic vertebra. The employment of his so-called high pressure local anesthesia method together with the use of the electric knife, reduces the bleeding attendant on laminectomy to a minimum. To avoid

pain from the posterior roots, the latter may be injected with a solution of 2 per cent procaine hydrochloride. He was able by this method to afford complete relief to a patient with intractable pain and rectal tenesmus. 2 For patients too weak to undergo a chordotomy, the method of "continued spinal anesthesia" may be employed. With the author's method of "delimited zonal spinal anesthesia," 2 or 3 cc of a 70 per cent alcohol solution is injected into the dural sac. This method is particularly applicable in cases of pelvic carcinoma of the prostate gland, the rectum, or the female genitalia. Two patients treated by this method were completely relieved of pain. 3 The same result may be obtained by epidural injection of alcohol through the sacral hiatus.

Restoration of Renal Function—Walters states that the return of renal function after removal of obstructing lesions seems remarkable. Evidence of this is the rapidity with which a distended pelvis will return to within normal limits of size and capacity, and with which renal function improves after complete removal of such obstructions. If one is to attempt to preserve a kidney injured as the result of an obstructing lesion when the opposite kidney is normal, one must have sufficient evidence that such a kidney will return to reasonable function after relief of the obstruction and after control of the infection, rather than to decrease in function and to atrophy. A most important point in such a decision is the remaining amount of renal parenchyma, as measured by the thickness of the cortex and the size of the calices. Even in cases in which a good deal of infection appears to coexist with the obstructing lesion, even in the presence of small cortical abscesses, the kidney may free itself of such infection after relief of the urinary obstruction. In such cases, removal of the fibrous capsule of the kidney, enabling the cortical infection to discharge itself, should be a part of the procedure. In the presence of stones in the kidney and ureter, tests of renal function, such as excretion of phenolsulphonphthalein, indigo carmine and various mediums used in intravenous urography, do not give an accurate index of renal function. Such being the case, whenever sufficient renal parenchyma remains the kidney should not be removed until evidence accumulates after removal of the obstruction that the kidney is not functioning. Indications for conservative procedures, such as resection of the renal pelvis, reimplantation of the ureter or removal of obstructions due to peripelvic tissue, are most strikingly indicated when the hydronephrosis is bilateral or if unilateral when sufficient renal parenchyma remains to justify its preservation. In making the decision as to the best conservative treatment to follow in hydronephrosis, the guide is one's own experience, it being remembered that the safest and best procedure is the one that produces adequate and complete relief of the obstruction, with only disturbance of the renal pelvis or ureteral tissue.

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Cause of Napoleon's Death—Kalma states that the general view held among historians and medical men is that Napoleon died of cancer of the stomach. This view is based on the postmortem examination, which showed that the emperor's stomach was the seat of widespread "scirrhous" ulcerations. To the medical reader of today a critical examination of the clinical course of the illness conveys the picture of a gastric ulcer with periodic dyspeptic symptoms, prolonged remissions, increasing anemia (as a result of occult hemorrhage), irritability of the stomach with daily frequent vomiting, severe attacks of pain, and recurring hemorrhage of the stomach. If one adheres to the necropsy diagnosis one faces an insurmountable contradiction between the latter and the clinical picture. A critical examination of the postmortem report shows beyond doubt, however, that the antral part of the emperor's

stomach was the seat of a characteristic, funnel-shaped callous ulcer, passing obliquely through the stomach wall, and the floor of which was firmly adherent to the lower surface of the liver. This observation is mentioned casually in the postmortem report, while chief attention is directed to the numerous ulcerations spread over almost the whole of the mucous membrane of the stomach. These ulcerations were looked on as cancerous or as ulcerations in the stage of cancerous degeneration. The clinical picture is definitely against the view that the ulcerations in question were of cancerous nature. In such a case the stomach would have been transformed into a stiff tube without any contractile power. Moreover, no metastases were found at necropsy. On the other hand, by assuming that Napoleon's stomach was the seat of a simple widespread ulcerous gastritis, the anatomic observations can be brought into complete harmony with the clinical picture. This hypothesis finds support in the anatomic investigations of recent years concerning the "gastric" pathogenesis of peptic ulcer. It should be pointed out that ulcer disease was unknown in practical medicine during Napoleon's time. It was through Cruveilhier's investigation, unanimously accepted by medical research of more recent times, that gastric ulcer became a separate clinical entity differentiated from cancer of the stomach.

Prostatic Hypertrophy—On the basis of histologic studies of normal and hypertrophic prostate glands, Krogius arrives at the following conclusions as to the nature and development of prostatic hypertrophy. The process is not one of tumor formation. It is to be regarded as a hyperplastic regenerative process aiming at the formation of new gland parenchyma to replace that used up in an elderly man, analogous to the regenerative phenomena observed in the prostate under normal conditions. Like the normal regenerative phenomena, the exuberant process leading to prostatic hypertrophy begins in the glandular ducts the epithelium of which retains its ability to form new gland parenchyma until advanced age. Prostatic hypertrophy derives its particular significance from the fact that the hyperplastic process takes place mainly in the middle part of the prostate, developing a steady proliferation of the peritubular connective tissue in the abundant fibromuscular stroma of this region apparently because the young glandular buds require a loose stroma for their growth. In this way there develop small "adenofibromas," which subsequently expand in size and give rise to the localized nodular formations so characteristic of prostatic hypertrophy. The so-called glandless nodules also take their origin from the peritubular layer of connective tissue. The epithelial covering of the newly formed glandular buds soon develops into a mature, secreting epithelium of the apocrine type, which delivers an apparently normal prostate secretion. However, the growth of the nodules results in a compression of the efferent ducts, with the result that in a more advanced stage of the disease the excretory function of the prostate scarcely derives any further benefit from the secretion of the nodules. At the same time, distinct retrogressive changes set in with dilatation and cyst formation. The histologic structure and the entire mode of development of prostatic hypertrophy closely resemble cystic mastopathy.

Essential Hematuria—Löfberg emphasizes the uncertainty in the diagnosis of so-called essential hematuria as well as the difficulties in selecting the proper surgical procedure. Essential or idiopathic hematuria is characterized by profuse hemorrhages coming from one side in the absence of any recognizable macroscopic lesion. The author points out, however, that even the inspection of a split kidney is not necessarily conclusive, because pathologic changes may be revealed on microscopic examination. Naunyn stated that nephritis was the underlying cause in most cases, though he admitted that a normal kidney may bleed. The author reviews the various theories as to the cause and reports the eight cases observed in the course of ten years at the General Hospital in Malmö (Sweden). A nephrectomy was performed in seven. Interstitial inflammatory changes, believed to be the common cause of essential hematuria, were present in only one case. Thrombosis and embolism were noted in one, and in one case pyelitis granulosa was present. In four cases there were no changes in the parenchyma. Therapeutic indications are vague. Operative intervention is frequently of exploratory nature. Of the various operative procedures, nephrectomy best meets the indications. All of the author's patients were restored to health.

